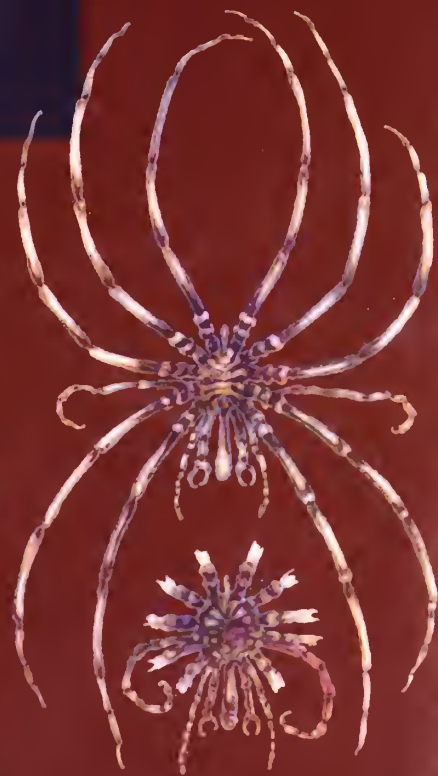


James Eights


1798 1882

Antarctic Explorer, Albany Naturalist



His Life • His Times
His Work By Daniel L. McKinley

New York State Museum



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JAMES EIGHTS

1798–1882



James Eights in 1870. Oil portrait by Asa W. Twitchell (1820-1904). New York State Museum, Accession No. 41.5.2, Division of Research and Collections. Photo courtesy R.T. Burch.

JAMES EIGHTS

1798–1882

Antarctic Explorer, Albany Naturalist,

His Life, His Times, His Works

by

Daniel L. McKinley

New York State Museum Bulletin 505

2005

The University of the State of New York

The State Education Department

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DEDICATED TO

Margaret McKinley, for many reasons,
not least, having borne with me and James Eights
these many years;
and
Margaret Stewart, whose faith
has removed mountains.

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Some people who have helped me may not find their names in the list below. Should you be among that number, I acknowledge my haphazard practices and suggest that I have recorded my obligations to you in the main body of my study. Since provenance of material has often been noticed elsewhere, this list is unadorned. While I am grateful to both institutions and workers, in the final analysis, no institution replied to my queries: It was an individual and, very often, one who cared deeply. I am delighted to have encountered so many people who cared whether a person they did not know and probably would never see was well served. That, to my mind, is what scholarly functions are about.

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AMERICAN PHILOSOPHICAL SOCIETY, LIBRARY. Eights, letter to Charles Ridgley, 10 Feb 1838.

BOSTON PUBLIC LIBRARY. Letter, Lardner Vanuxem to William L. Marcy, 5 Sep 1836. Chamberlain Papers, CH.E.G.14.

DAUGHTERS OF THE AMERICAN REVOLUTION, TAWASENTHA CHAPTER. Minutes, 16 May and 21 Nov 1933.

GRAY HERBARIUM, LIBRARY, HARVARD UNIVERSITY. (1) Letter, Eights to Asa Gray, 17 Sep 1838. (2) Letter, John Torrey to Joseph Henry, 2 Aug 1838. Historic Letter File. (Used from copy in the Joseph Henry Papers, 4: 83-85.)

HISTORICAL SOCIETY OF PENNSYLVANIA. (1) Letter, Eights to Amos Eaton, 22 Jan 1823. Gratz Collection. (2) Letter, Charles Wilkes to Joel R. Poinsett, 1 May 1838. Poinsett Papers.

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KANSAS, UNIVERSITY OF, KENNETH SPENCER RESEARCH LIBRARY. Constantine Samuel Rafinesque, Journal, 1833-1834. Rafinesque Collection, MS 13:I:5.

MUSEUM OF COMPARATIVE ZOOLOGY, LIBRARY, HARVARD UNIVERSITY. Letter, Eights to Amos Binney, 9 Aug 1834.

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NEW YORK PUBLIC LIBRARY. (1) Letter, T.R. Beck to Amos Eaton, 10 Sep 1822. T.R. Beck Papers. (2) Letter, Jacob Green to T. Romeyn Beck, June 1832. Same. (3) Letter, Jonathan Eights to T.R. Beck. Same.

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WHY BOTHER ABOUT JAMES EIGHTS? — THE EIGHTS FAMILY — DR. JONATHAN EIGHTS

JAMES EIGHTS: REFURBISHING A REPUTATION

If God helps those who help themselves, we can expect little assistance from the Almighty in regard to James Eights. He left a poor record of his life and work.

While James Eights published rather widely, some of his work being of a real pioneering nature, few of his letters survive. He left no diaries or journals or even detailed records of scientific work that today would gain him worldwide honor. Such specimens as now exist are minimally documented.¹

Although much happened that was no fault of his, he spent the greater part of a long life paying little attention to the very substantial value of the specimens that he did gather, notably those connected with his pioneering work in the Antarctic. These were poorly curated, frittered away as duplicates by museum curators, and lost in mass transfers from the Albany Institute. If any went to the Lyceum of Natural History of New York, they were lost in an arson fire, unrecorded and unstudied.

He alluded in one place to a floral calendar of 30 years' duration he had kept. That, if detailed, would be of immense value to Albany Pinebush biologists today, but it seems not to have survived. A trace of it can perhaps be precariously gleaned from various popular articles. Letters to and from him, manuscripts, full accounts of any of his many forays in lands ranging from the fringes of the Antarctic to

Tierra del Fuego and Chile, to Michigan, North Carolina, Panamá, Mexico and, possibly, the American Southwest: All is most sparingly documented, rarely ever by any effort of himself. Today's Antarctic scientists would dance in the streets if they could see Eights's very first fossil plant specimen from King George Island in the South Shetlands. Although he realized something of the value of that fossil, you cannot be sure from published remarks if he actually had a specimen in hand or had been forced to leave it where he found it.²

Can he have failed to keep records out of a youthful vanity that his accomplishments would be visible in his published work and known to the world in general by his good repute among scientists? Did he, as a result of disappointments, then suffer a sea change and cease to care if his history died with his lonely, unsung self?

As will be seen, there was substance to James Eights. The purpose of my work is to document his accomplishments in various fields of natural history. This is a big undertaking for, by the year 1900, he was all but unknown to the world at large, even though there were then people alive who had known him intimately.

One would be justified in dismissing Eights, judging from references to him in many standard works on the history of natural history and its specialized fields. Agassiz's bibliography of zoology ignored him. He got no room in George Brown Goode's history of the begin-

nings of American science, even though Amos Eaton, with whom Eights collaborated out of the early Rensselaer school at Troy, and Stephen Van Rensselaer, certainly no more than a patron of science, were treated at length by Goode. Maybe he did not belong in the Fentons' *Giants of Geology* but he certainly ought to have been in Merrill's *The First Hundred Years of American Geology*. George W. White, a historian of American geology devoted to overlooked contributors, never noticed Eights, and Mary Ellis's extensive bibliography of science in New York State in 1903 gave him short shrift, despite his contributions to New York geology and, at least incidentally, to its botany and various fields of zoology.³

And yet, James Eights lived and worked and left a few marks by which we can trace his path, with some degree of confidence most of the time. It becomes evident that Eights knew many of the famous of his day. Maybe he knew too many of the wrong sort — artists, declaiming poets, editors, a few politicians. He also must have had some acquaintances who joined him in his occasional (perhaps sometimes sustained) alcoholic binges, when Demon Rum, at least in the eyes of concerned friends, threatened to put a premature end to his life's work. His father ultimately disinherited him, after a long period of what looks like a cosseted existence. Whether he was dominated by his father or pampered by his mother (or both) is not known, but it all ended abruptly with their deaths, leaving him for a while as a ship without a rudder.

So, James Eights lived and worked. We even know something of what he looked like, although some mystery surrounds two of the three portraits of him. One portrait is a late portrayal in oil by Albany's accomplished painter, Asa W. Twitchell — surely, indicative of Eights's high standing among at least certain of his Albany fellows.⁴

Nothing is known of Eights's education. Perhaps he was tutored privately. There is no indication that he was ever connected with the Albany Academy (founded 1813), although a later brother (one of three 'Abrahams' among his siblings) was schooled there.

Just as mysterious is the title of "Doctor"

frequently found associated with his name. He himself often added the term "M.D." to his signature. He did, in one place, state that he was naturalist and surgeon on the exploring expedition to the Antarctic that is his major claim to fame, and such may have been the case. There is no record of how much doctoring he did on the trip, for the log of his brig has been lost. He was briefly "Hospital Surgeon" in the Third Brigade Horse Artillery of the State military establishment, 1831–1836; but there is no indication that he ever had an office or practiced his profession. Despite his evident long-term interest in medicinal plants, he must have been more naturalist than surgeon: In both fields, his expertise was practical, not academic. He may have gained his medical certification the way his father got his: by serving a period of internship in a doctor's office (perhaps his father's?) and then being declared fit to practice. By the time of our concern, this would have been a decidedly uncommon way to gain certification.

As mysterious as his claim to being an "M.D.," there was the title of "Professor" a few times attached to his name. The nearest I can come to documenting the "professor" title is that McAllister's biography of Amos Eaton notices that "Dr. Eights" had been an invited "Examiner" at the Rensselaer School (now Rensselaer Polytechnic Institute), but the reference is very likely to his father. Eaton wrote somewhat ambiguously on the subject, claiming that Eights had assisted him in teaching natural history to Rensselaer School students, in a letter to Secretary of the Navy Southard, when Eaton was promoting Eights for the job of naturalist with the Antarctic exploring expedition.⁵

While no prodigy, Eights was a competent artist, especially in the field of biological illustration, and more especially in the case of invertebrates and fossils. But he produced acceptable landscapes and would ultimately be known locally more for his reconstructions of early Albany street scenes than for any other reason.

However unjust it would have been, we should still have heard next to nothing of James Eights today but for his early (and long neglected) account of a mysterious Antarctic sea-spider with ten legs.⁶ Early in twentieth the century, a bright young zoologist, Leon J. Cole, recognized

Eights's worth and had the temerity to dig for news of him. By that time, Albany was not the place to find out much about one of its famous sons, but Cole hit pay dirt. He wrote to John Mason Clarke, who had come to New York too late to know Eights but found a few people who had known him. Clarke's mission then became rescuing Eights from oblivion. Clarke's work, published in 1916, triggered the "reincarnation" that he realized to be long overdue.⁷

THE EIGHTS FAMILY IN AMERICA, THROUGH THE TIMES OF ABRAHAM EIGHTS, WHARFMASTER

As is clear from a cursory encounter with the "begat" chapters of the Bible, a genealogical account does not provide exciting reading. Yet, at the risk of boring readers, I present what I have found out about James Eights's family. Some of this has been summarized in a well-researched account by Char Miller and Naomi Goldsmith. To it, I add previously unpublished information courteously supplied me by Miller (some of which must have come through efforts of Goldsmith). In addition, a few obituaries, some primary records, and a modest number of neglected accounts are brought together for the first time.⁸

The family name was of Dutch origin. Early spellings may have varied. John Mason Clarke was apparently correct to infer that the name first appeared in Manhattan as Eght or Echt, for the 1699 Dutch Reformed Church marriage records state that on 10 December, Willem Echt of Rotterdam and Marritje (Marie) Van Dyck of Amsterdam were married by Dominie Gualtherus Dubois (courtesy of Roger McNair, an Eights descendent, who has kindly shared this early family history with me). Heretofore, the earliest record has stated that these two, their names already anglicized to William Eights and Mary Van Dyck, emigrated to New York (City) in the late seventeenth century. In church records, however, it appears they were still called by the surname Echt. Clearly, the precise date of their emigration needs to be determined, given the date of their marriage. I

have no further dates for their lives. Their first child, Catalina, was baptized 26 May 1701, having been born in 1700. Their son, later known as Captain Abraham Eights, was baptized 12 Nov 1701, as Abraham Echt; he later married Catharine (or Catherine) Benson (born in 1714). A second daughter, Maritie, born in 1703, was baptized 4 August 1703.

After Captain Eights died (date unknown; he participated in a New York City election in 1761), his widow removed to Albany in 1769 with their children, who included our own "Father" Abraham (10 May 1746-10 January 1820), grandfather of James Eights. Other children were: Marie, Elizabeth and Catharine. Marie (d. 1783/1784) married Hendricus Bratt on 9 May or 25 March 1776. There was one child, Anthony, born 12 October 1783, of whom no more is known. Elizabeth (ca. 1748-31 March 1838, aged 90; not previously reported) married Peter Hilton of Guilderland, New York, whom she long outlived. Children were Richard and others unnamed. Catharine (1751-3 October 1825) married Hendrik van Woert on 5 August 1773. They had seven children, listed but not further treated here: Abraham (born 13 February 1777), Elizabeth (21 Aug 1779), Elizabeth (14 February 1782), Hendrick (3 April 1784), William (7 September 1786), Catharina (29 April 1788) and Catharina (19 October 1791).⁹

Just why the widowed family of Captain Eights moved to Albany is not clear. That it was an outpost with marine connections (a matter of concern to a family with shipping interests) and long, close connections to the Dutch may have some relevance. Possibly more to the point, the widow, Catharine Benson, was the daughter of Dirck Benson (1677-1725) and Elizabeth Radcliff. Dirck was the son of Samson Benson and Tryntje Van Deusen. Samson was the son of an earlier Dirck Benson, who came out from Amsterdam about 1648; he married Catalina Berck and was living in Beverwyck (Albany) in 1654.

While this Dirck Benson was a wealthy New York (City) merchant, he had Albany connections. In addition to Catharine Benson Eights, Dirck was also father of Eve, who was the first wife of Anthony Duane (1682-1747), born in Galway, Ireland. Anthony Duane

bought an estate of 6,000 acres in the vicinity of modern Duanesburg in 1741.¹⁰

True, while James Duane (1733–1797) and later Duanes were not related to the Eights family (they were products of Anthony Duane’s second marriage, to Althea Keteltes), it is possible that Catharine had maintained friendly contact with the Duane family.

Our Abraham Eights — Father Abraham — was a young man when his father died. Father Abraham (it is recorded that he did not early on deserve so saintly a title) received the “rudiments of a good English education.” He was also made an apprentice to a sailmaker. It was in this trade that young Abraham got what Char Miller refers to as “a different sort of education,” being exposed to “loose and profane company,” as Abraham’s memorialist put it. In any event, the Eights family quickly settled into life in the Albany area. Young Abraham married Catharine Broecks (Brooks) of Albany on 16 June 1770. His sister Catharine married within three years of that time; in another three years, Marie had married. I do not know when Elizabeth married Peter Hilton of Guilderland.¹¹

Young Abraham, as might be expected of a Dutchman, stoutly defended the Colonial side in the Revolution. He served first as 2nd Lieutenant in the 2nd Company of the 1st Regiment of the City of Albany and then as Lieutenant, when he was transferred to the 3rd Company. He fought in battles around Lake George, the Mohawk River, and in northern Pennsylvania.

As Char Miller tells it, Abraham also fought the Devil, for he had undergone a conversion under the influence of the Reverend Gano, a Baptist preacher. He gained a faith that carried him unscathed through “the dissipation and bustle” of the Revolution. Upon his return to civil life, he became a member of the First Presbyterian Church in Albany and was associated with it the rest of his long life. There he was called “Father Abraham” — partly, a reference to his upright life, partly a commentary on his stout service to the church, of which he was a trustee from 1788 to 1799 and a deacon from 1795 until his death in 1820.

Father Abraham stood high in Albany’s business and civic communities in post-Revolutionary America. His mercantile business on Water Street was a bustling concern by 1784, where he sold everything from Mucavado sugar by the barrel to windmills for cleaning wheat. His long-time home was 28 Dock Street. In 1894, he joined with other proprietors (the Albany Wharf Association) in building a dock that ran from Maiden Lane to State Street. A year later, he was made “wharfinger” (dockmaster), a position he held until his death. (Merchant though he was, he was consistently listed as a sail-maker in records kept by the First Presbyterian Church in entries for baptisms of his children.) Abraham also owned numerous parcels of land in the city.¹²

Abraham and Catharine (Brooks) Eights had 11 children. Sons were Abraham (1771–1798), Jonathan (1773–1848), and Maximus (or, according to church records, “Marinus”) (b. 1792; may have died young). Daughters were Catharine (1775–1845), who married (1795) John Burton (born 1764); Rebecca (1776?–1852), unmarried; Mary (Maria) (1780–1848), unmarried; Elizabeth (1782–1857), unmarried; Rachel (1787–1857), married (1814) Israel Williams (1786–1840); Phebe (1790–1869), married (1812) James Cobb (1788–1872); Ann (Anna) (1788–1869), married (1813) Joseph Boies (1783–1866); Jane C[atharine?] (1796–1828), unmarried.¹³

Father Abraham ran a tight ship with his family, as he must have done with his business. Four of his daughters became members of the Presbyterian Church; he stipulated in his will that married daughters were to receive \$500 each from his estate, with the same amount to go to those not yet married but who did so before their mother’s death. Since Jonathan’s medical education had been subsidized by loans from Father Abraham, his share of the inheritance was diminished by the amount still owing (in 1820! — clearly, Jonathan had been in no in hurry to settle that debt).

Father Abraham’s funeral was preached by the influential orator, the Reverend Arthur J. Stansbury, on 30 January 1820, and was printed as “Mourning for the Righteous.”

DOCTOR JONATHAN EIGHTS, FATHER OF JAMES

Jonathan — the Doctor Eights, in spite of pretensions of James — was born in Albany 26 November 1773 and died there 10 August 1848. He married Alida Wynkoop (Wyncoop) (1773-15 May 1849), of Dutch stock from near Coeymans, on the Hudson south of Albany — just when, has not been established. Several dates in his life have not been determined with certainty. The record is only partly clarified by his own brief memoir written hastily and late in life (1847) and lapses by various biographers add to the tangle.¹⁴

It appears that Jonathan Eights was an enterprising young man. He determined upon a career in medicine and, as was done in those days, he gained certification by working in the office of an established doctor, who then certified him as fit to practice. The Albany Hall of Records has this document. It is labeled: "License of Jonathan Eights to Practice as a Physician & Surgeon — filed March 27, 1799." It bears quoting in full, quaint reminder of a simpler age.¹⁵

"Albany March 22, 1799

"This is to certify that Mr Jonathan Eights was a student of medicine under my care & that of Doct Wilhelmus Mancius, with whom I was then connected in Business, from the month of October 1790 until sometime in April in the year 1794. That from his attention to his Studies and the opportunities he had of seeing many different cases both in Physic & Surgery, induced me at that time to give him a Recommendation, as a Person well qualified [sic] to practice Physic & Surgery, and I have understood from different persons where he has practised, That he has been a successful & useful Practitioner since he left my care until the year 1798 about which time he left this State.

"Hunloke Woodruff

"The above named Hunloke Woodruff of the City of Albany Physician & Surgeon made oath that the preceding certificate is true before March 26, 1799

"John Lansing Jun. [end of page 1]

"To all whom it may concern I John Lansing Junr Chief Justice of the Supreme Court of Judicature of the State of New York do certify that Jonathan Eights hath produced satisfactory evidence to me that he hath studied physick & surgery with Doctors Wilhelmus Mancius & Hunloke Woodruff two respectable physicians & surgeons of the City of Albany for the Term of two years & upwards & that in conformity to a Statute of this State entitled[?] 'An act to regulate the practice of Physic & Surgery in this State' he is licensed to practice in both capacities, his said Term of study having been completed before the passing of the Act aforesaid.

"In Testimony whereof I have hereunto set my hand & seal, at the City of Albany, the 26th Day of March 1799.

"John Lansing Jun."

There are apparent ambiguities in the record. Jonathan (with his wife Alida, it is said) departed Albany for the community of Canajoharie, apparently in 1795. There, it is agreed, he set up the practice of physick and surgery. It appears that he remained only a short time in that position. His medical biographer, Sylvester D. Willard, intimated that he had "his certificate from the Medical Society of the County of Montgomery," in which Canajoharie is located; but this was clearly a certification issued later, after an absence from Canajoharie and later return there, and after his certification by the State, cited above.¹⁶

By Jonathan's own account, we learn that the initial residence in Canajoharie was a short one. It is now time to quote in full Jonathan's memoir of 1847, both to correct that important document where necessary and to introduce its several important facts.

When Jonathan was ill with what was to prove his final illness, he wrote at length on 27 March 1847, in reply to an invitation to a testimonial dinner upon the fiftieth year of service of Jonathan's close associate, Dr. William Bay, at Congress Hall, Tuesday, 30 March. His reply, written partly to outline his own life's work, partly to correct an assumption on the part of the hosts that Bay was his superior in years of service, was as follows:

"To Drs. Beck, Hun, Cogswell, P. McNaughton and James F. Boyd:

"Gentlemen — Your polite invitation to attend the complimentary dinner to my old and bosom friend, Dr. W. Bay, I have received, and I can assure you nothing would gratify me so much as to be present and join with you in rendering this mark of respect to that venerable and able physician. But I am compelled to forego that pleasure. — My long and continued illness will prevent my attendance, which you will accept as my apology.

"I have known Dr. Bay since our school-boy days; but since 1810, when he removed to this city, a pure friendship has existed, which I hope will only terminate with life.

"I wish, however, in this connection, to correct an error, which, if not noticed at present, might be recorded as a fact. I do this not to injure my friend — I would not pluck a single laurel from his brow — but in justification of myself.

"I send you a short synopsis of my medical career, which you are at liberty to dispose of as you think proper.

"I was born in this city on the 26th of Nov. 1773, and received my classical education under the tuition of the late George Merchant, under whose care I was nearly three years.

"In the year of 1790, I commenced the study of medicine, under the late Drs. Wilhelmus Mancius and Hunloke Woodruff, with whom I remained until April, 1795. I was then examined by them in the presence of two physicians, then of this city, and received their certificate of competency, which, I believe, is on file in the Clerk's office in this city. Shortly after, I was solicited to go to the town of Coxsackie, then in Albany county. A severe bilious, remittent and intermittent fever was raging with great violence. I remained there until late in the fall, intending to make it my permanent residence; but a severe family affliction induced me to return to Albany, where I remained until the ensuing spring. I was then solicited to settle in the town of Canajoharie, county of Montgomery, where I remained until Nov., 1797, when I went to Philadelphia for medical improvement, especially in surgery. My limited means, however,

prevented me from improving every opportunity. I was kindly treated by several respectable physicians and surgeons, and every opportunity offered to me for improvement. I remained in Philadelphia until July ensuing [that is, 1798, if his dates are correct], when I returned to this city, and the following spring returned to Montgomery county, and became engaged in an extensive and laborious practice until 1810. In May [of the latter year] I removed to this city, where I have been engaged in practice ever since.

"Dr. Bay is my senior in years one or two months; but from the above statement, which is perfectly correct, you will perceive I am his senior in practice. The Doctor came into this city after I had settled here.

"I am, gentlemen, very respectfully, yours,
&c. &c.

"27th March, 1847. Jon. Eights."¹⁷

A close examination will reveal inconsistencies in accounts of Jonathan's career in this letter and in the certification signed by Dr. Woodruff. Both accounts were written after the fact, Jonathan's long after; Woodruff makes most dates of the 1790s a year earlier than Jonathan does. There may be additional ambiguities.

I presume Woodruff's statement that about the year 1798, Jonathan "left the State" refers to the sojourn in Philadelphia. I cannot find any evidence that Jonathan actually matriculated in a medical school there; presumably, he volunteered his services in the offices of sympathetic doctors and of that one cannot expect to find records. In regard to the Philadelphia period, note a vague suggestion in the following chapter that Jonathan's son James was born in Pennsylvania.

Note that Woodruff does not mention Jonathan's return to Albany from Coxsackie, due to "a severe family affliction" (what was it?). Another absence from Albany also seems to need attention, one that Jonathan did not consider worthy of note.

In *Coeymans and the Past* (written by Edward D. Giddings for the Tri-Centennial Committee of the Town of Coeymans, 1973), one learns that

a merchant at Coeymans Landing, William A. Dumont, a dealer in general merchandise, served the extended community of some 250 families, whose names appear on his books as having bought goods on credit during the period 1799–1806. Among these names is “Eights” — I venture to guess that this was the young family of Dr. Jonathan Eights: buying on time, as he appears to have done since his initial borrowing of funds from his father.

First of all, Jonathan Eights is the only Eights I know of at the time not in Albany. Second, Alida Wynkoop is thought to have come from the Coeymans area, although her family does not appear among names cited in the Coeymans publication. Unfortunately, this information cannot be further documented at this time, for Dumont’s papers have at least temporarily strayed from view.¹⁸

That the Jonathan Eights family very likely was in the area at the time is indicated by an additional item of great interest. In the Sterling Potter Collection in the New York State Archives, there appear entries that do much to clarify matters. Among baptisms at the Coeymans Reformed Church are three for children of Jonathan Eights and Alida Wynkoop: Abraham, 28 October 1796; James, 1 May 1799; Alida, 6 August 1801.¹⁹

This means, first of all, that at least Jonathan’s wife Alida resided in Coeymans much of the time from at least late 1796 through autumn 1801; she is very unlikely to have gone there from Albany to have her children baptized — and trips of that sort from Canajoharie are even more unlikely.

It also helps to resolve several tangles regarding both dates of birth of Jonathan’s children and the exact composition of his family. It is the first proof we have of a probable date of birth for Abraham. It throws into doubt the usual birth year of 1798 for our James Eights, considering that he was not baptized until 1 May 1799. Nobody, in any case, has ever documented the date of 1798 (see comments on his birth in the next chapter).

Alida’s baptismal date of 1801 is important (nobody gives her an assured birth date). It also puts in doubt a ghost “Abraham W. Eights”

who is said to be buried (that is, reburied) in Albany Rural Cemetery, where he is given the dates of 1801–1 January 1822.²⁰ Now, not only was there already a son of Jonathan and Alida named Abraham (“Junior”), baptized in 1796 (he died 6 December 1817), but birth of an Abraham in 1801 is impossible, given daughter Alida’s baptismal date of early August. Further, I cannot believe a son of so prominent a citizen as Jonathan Eights would not have been noted in an obituary published in Albany newspapers. I find none for the period of January 1822. Besides, by 15 May 1819, there was *another* Abraham, called Abraham C.W. (he died 5 November 1836)!²¹

Thus, “Abraham W.” is spurious. It firms up the other two Abrahams — but leaves *one* of them unaccounted for in Albany Rural Cemetery, where there is a record with (dubious dates) of only one. I think the Albany Rural Cemetery Abraham likely to be the one who died in 1836, although this cannot be proved. If so, where was the first one (died 1817) buried? Supposing that Alida Wynkoop, who had him baptized there, might have insisted that he be buried there as well, I have combed records of Coeymans cemeteries without success. In any case, his death occurred long before establishment of Albany Rural Cemetery.²²

In addition to the four children of Jonathan Eights just listed, there were two others: Sarah Elizabeth and Catherine. The entire list, in order, then becomes: ABRAHAM (“Jun.”), 1796–6 December 1817; JAMES, 1798/1799–22 June 1882; ALIDA, who married Daniel Palmer (1801?–25 August 1880), 1801–27 December 1862; SARAH ELIZABETH, 1812–6 October 1827 (reports to the contrary can be ignored); CATHARINE, 1816–2 January 1878, who died unmarried, suffering from ovarian cancer; ABRAHAM C.W., 15 May 1819–5 Nov 1836, who was a student at the Albany Academy from December 1828 through April 1834 (he is recorded as simply “exiting,” not graduating). (With the death of Abraham C.W. Eights, efforts by Jonathan to leave a son named for his father had to be given up.)

Jonathan Eights’s life as a doctor was a long and demanding one. He was ambitious, some

said imperious, and his interests were many and varied. He was active in organizations ranging from medical to scientific. He kept weather and related records. His talents (and opinions) were by no means kept under a bushel. When not reelected to the presidency of the Albany County Medical Society in 1817, his temper flared and he resigned from the Society. Politically an ardent Federalist, he had been appointed by the Albany Common Council as a physician to the poor (the Almshouse Physician) as early as 1813. He was duly reappointed on 21 January 1820 but his fortunes changed with the autumn election, when the “majority of the common council being democratic, the old federal officers were removed . . . Dr Eights, city physician, gave place to Christopher C. Yates.”²³

Some highlights of Jonathan’s career are worth noting. He was in 1878, according to the F.W. Beers *History of Montgomery County*, “the first remembered physician at Canajoharie.” In the same work, it is noted that in October 1806, the membership of the Montgomery County Medical Society “was increased by the addition of . . . Jonathan Eights” and seven other doctors. Washington Frothingham notices that Jonathan was in fact president of the Montgomery Medical Society in 1808. (There remains a question whether Jonathan Eights was in any way related to an Eights family already in the Canajoharie area; in the F.W. Beers & Co. *History of Montgomery and Fulton Counties*, we learn that one Adam Eights was surprised and killed in 1780 or 1781, in a raid of the enemy led by Chief Joseph Brant; furthermore, in the first U.S. Census of 1790, for Canajoharie Town, there is listed Christian Eights, head of a family made up of four adult males and three adult females.)²⁴

Jonathan was debtor to Ezra Ames, the eminent painter of Albany, for the painting of a Masonic apron, 17 June 1800; perhaps this occurred before his second residence at Canajoharie. (Ames painted anything — weather vanes, Masonic paraphernalia, medals, crosses, clock-faces — and swapped portraits for services to eke out a skimpy living in those early days.)²⁵

Upon his return to Albany in 1810, Jonathan hit the ground running. He was active in the Society for the Promotion of the Useful Arts and rose to be its recording secretary. He later served as vice president of that group when it became one of the components of the Albany Institute (whose history will be noted in more detail with my account of James). Unlike his son James, he regularly paid membership dues. In addition, Jonathan frequently figured in activities of the Albany St. Nicholas Benevolent Society (St. Nicholas being a traditional patron saint of the Dutch), and as early as 1831 was a physician for that charitable group.²⁶

Another slant on Jonathan’s economic and social status may be gathered if it can be proved that, at least for a brief period, perhaps after the death of his father, he was a slaveholder. Howell and Tenney (in their *Bi-Centennial History of the County of Albany*, 1886) note, obscurely and all too briefly: “One of the most noted agents [of the Underground Railroad] at the Albany station was Stephen Meyers. He was born a slave in Rensselaer County in 1800, in the family of Dr. Eights, but was soon liberated by the abolition of slavery in this State” (that is, 1827, when, on 4 July, 10,000 slaves in the state were freed). Perhaps more information on slaveholding by the Eights family can be turned up (we know, for example, that Abraham Eights had two slaves, in his household of 12 white persons, as recorded in the first U.S. Census, 1790). The whole matter is somewhat obscure, for Wesley G. Balla, Albany Institute of History and Art, informs me that a search of manumission records for Albany, 1800–1828, fails to provide information on Meyers or the Eights family.²⁷

How frequently Jonathan Eights may have had interns in his office is not known but William Humphrey (born 2 February 1796) studied with him in 1813 (he ultimately graduated from the College of Physicians and Surgeons in 1819). In May 1828, Jonathan formed a partnership with Dr. S.S. Treat, the duration of which is not recorded.²⁸

Despite his being at Canajoharie until 1810, Jonathan served on a committee to draft bylaws of the Albany County Medical Society; he signed the report of the committee dated 14

April 1807. He was immediately active in Albany County medical matters when he removed to Albany. At the quarterly meeting 10 June 1810, Jonathan produced "his certificate from the Medical Society of the County of Montgomery" and "took his seat in the Society." He was promptly appointed "a Censor pro tempore" and began serving on a committee to revise bylaws of the Society, his group reporting on 9 October 1810. It was agreed that any doctor who presented evidence of membership in any county medical society in the state should be immediately admitted into membership in the Albany County Society. (Members also learned, no doubt to their disappointment, that the College of Physicians and Surgeons would no longer admit, gratis, to its classes "students recommended by the county medical societies.") Jonathan Eights lectured to the Albany County Medical Society on the hydrocoele 9 April 1811.²⁹

In 1812, Jonathan was nominated President *pro tempore* of the Society and, in 1813, was elected President. At the 14 January 1817 meeting, "Doctor Jonathan Eights not having been reelected President, was at his own request dismissed from this Society." Evidently, he did not long remain a nonmember; he was again attending meetings by 11 May 1819, at which time he proposed for membership his erstwhile student, Dr. William Humphrey, and, on 9 January 1821, Jonathan was again elected president, also retaining the function of censor.³⁰

Notices related to Dr. Jonathan Eights in the Albany *Argus* were common, concerned with his many activities, some professional, some social and, even, some political, for his political Federalist leanings suited the partisan democratic (and later Democratic) *Argus* not at all. On 9 February 1816, Dr. Eights's election as counsellor of the Society for the Promotion of Useful Arts was reported. On 5 January 1819, he was reported as its secretary. A bit later (beginning 22 January), he inserted in the *Argus* a request for information on the performance of an experimental Persian wheat; premiums were to be offered.³¹

In 1821, Jonathan was a member, represent-

ing the Second Ward, on the Albany County Convention to revise the State Constitution.³²

On 8 January 1822, Jonathan was elected delegate to the State Medical Society. He was an associate contributor to the *New York Medical and Physical Journal* in 1822–1823. In 1830 and 1831, he was president of the New York Medical Society, having been its treasurer for several years. In his lectures as president, he spoke authoritatively on "Vaccination" and "Puerperal Fever." His name appears in various ways in Albany County Medical Society affairs over the years, and on 14 January 1840, no doubt more as an honor than a working position, he was elected president. His formal lecture in 1841 was on "Phlegmasia dolens." His last recorded attendance at a meeting of the Society was 9 Sep 1845.³³

In addition to several notices of his activities in the Albany County and State medical societies, we find that he was elected a first vicepresident of the Society for the Promotion of Useful Arts in 1824.³⁴

On or about 3 May 1825, Dr. Eights began to sponsor an advertisement, as follows: "DOCTOR EIGHTS Has removed to No. 41, North Pearl, corner of Columbia street. His office will be kept in No. 6, Webster's Buildings, Albany."³⁵

On 29 July 1826, Dr. Eights wrote a long article (repeated as an advertisement on 31 July) on a proposed meeting on 31 July of "The different Masonic bodies" in the Capitol. His fondness for that craft and its rituals is evident. He was chairman of the meeting.³⁶

Such was the standing of Dr. Eights that in 1827, he and five others "received the degree [of Doctor of Medicine] on the recommendation of the State Medical Society." Mind you, this was an honorary degree only — Jonathan had been practicing medicine for some 30 years by then! (His was the very first group to receive such a degree and, in fact, the practice was not formalized until Chapter 366 of the Laws of 1840 laid ground rules and allowed the honor to be extended to no more than four persons per year.)³⁷

On 22 April 1830, an advertisement listed Jonathan as a member of a committee of

arrangements for Albany Institute, announcing an annual lecture. On 9 June, the *Argus* carried an uncommonly long report by Jonathan, president of the Medical Society of the State of New York, calling for a “Medical Topographical Survey of the State” — a sort of comprehensive natural history of each county and not at all entirely medical in nature! As noted above, as its president in 1830 to 1831, Jonathan gave the annual address to the State Medical Society, a commentary on “Vaccination as a preventive of small pox,” an account “well calculated to sustain and increase his reputation as a physician of sound practical views, and of extensive information.”³⁸

In September 1831, Dr. Eights began to be identified as a driving force in an effort to remove free-ranging swine (as garbage collectors!) from the streets of Albany. It promptly became the “Eights Hog Law,” perhaps partly to identify it with his well-known Federalist sympathies (in newspaper reports, it was “Jonathan Eights’s Hog Law”; there is no mention of Eights in Common Council records). At any rate, the proposed law was introduced by Alderman Barent P. Staats, evidently at the request of Jonathan Eights and “some hundred others,” as early as the 22 August 1831 meeting of the Common Council. Their request “praying the passage of an ordinance restraining swine from running at large in the City” was read and referred to a special committee.³⁹

The special committee reported that they “had given the subject due consideration” and had arrived at the following conclusions: “1st. That swine running at large are a greater nuisance than the filth they destroy would be, if left in the street from one sweeping to the other of each week. 2nd. That there are persons in the city who will go from house to house and will take away the swill and offal of every kind without any expense to the owners, except a tub or pail in which to deposit the same. 3d. The committee cannot find on strict enquiry that swine running at large are conducive to health in any way whatever, and consider it a poor compliment to our citizens, to say that [they] must keep hogs in the streets to keep them clean. And further, the committee are informed, that many of the swine are kept by

speculators, and not by the poor, as many believe.”⁴⁰

There followed a charade that any reader of today will find perfectly in tune with the single-mindedness of partisan politics. Someone brought in a “Remonstrance” — said to have been signed by several hundred people. I have not been able to find a copy of the Remonstrance but some members doubted if the people said to have signed it could actually be found (a familiar enough charge!); others thought that at least two-thirds of the citizens of the city supported the restraining law. Others found the language of the Remonstrance too full of Greek and Latin phrases to be intelligible. Was it not, in fact, a joke of some sort that those people had signed? There were calls for referral to committee and other parliamentary pranks. Mr. Seymour supported the Remonstrance; he opposed the restraining law because it subverted what ought to be their main purpose — to provide poor people a way “to support their large families.”⁴¹

Although the Remonstrance was ultimately tabled and the restraining proposal became law, the end was not yet. As the *Argus* reported, opponents of the law cannily chose the cholera season to renew their assault — and timed their main barrage to occur when councilmen were anxious to end a long evening’s work. A resolution suspending the law until November was introduced by Mr. Gibbons, who “had found no greater nuisances, and none which he thought deserving of more immediate attention at this time, than those arising from the confinement of hogs.” Owners of swine, he noticed, were now “obliged to shut them up in pens, cellars, and in some instances of poor families, in the very room where the family ate, drank and slept.” It was, he felt, “his duty to urge [suspension] upon the board, at this time, as a necessary precaution against the introduction and spreading of the Cholera in the city.” He was “governed entirely in doing so by that sense of duty which had governed, and which he trusted always would govern his conduct.” Clever man!⁴²

Barent P. Staats “regretted that this agitating question had been brought up at all; particularly at this late hour of the night (11 o’clock), and

while the Cholera panic was at such a height throughout the city.” He doubted that the resolution proceeded from a “sense of duty,” unless it was the same sense of duty that “prompted the mover of this resolution to absent himself when the law referred to was passed.” And “he disliked the political squinting given to the resolution, by proposing to suspend the law until after the next election.” The Recorder thought the hour late, since it took “an unfair advantage of those who were known to be in favor of the law, but who were absent from their seats.” Mr. Seymour waffled, having opposed the law in the first place; he now proposed that free-running swine were the best way out of a bad situation, namely, the cholera epidemic. Still, after some further consideration, the resolution to temporarily suspend the Hog Law was withdrawn.

Even in 1834, some final volleys were fired. Mr. Wasson reported a proposal that the Hog Law be amended, “so as to prohibit the running of swine at large without being ringed in the nose, on penalty of \$3.” This would prevent the swine “doing injury to the paving.” It would also retain them as scavengers, which he thought useful, and would “prove a benefit to poor families.” Mr. Maher was more forthright: “He would protect the poor in a sort of pre-scriptive right which they had enjoyed until recently, even at the risk of soiling a lady’s gown now and then, or offending the sensibilities of street critics. The rich could better afford to repair the injury to their clothes, than the poor could be deprived of their pork in the winter.” Simple! The proposed amendment was finally referred back to committee.

And there, as far as I can tell, the matter remained for a time. If, however, Codman Hislop, in *Albany, Dutch, English and American*, is to be believed, that was not the end of the affair. In his essay, “An old custom is hard to change,” he aptly exemplified his conclusion in regard to the time required to end the reign of free-ranging hogs in Albany. “What to do about the hogs that were over-running the streets? In 1849 the Council received a report that four thousand of them were loose in the city. Their owners were horrified when the Council ordered that all hogs found unringed and roving the streets

should be captured and held until the owners paid a fine. In 1854 fifteen thousand of them were captured.”⁴³

As for the cholera scare of 1832, it was real enough and was closely reported in the *Argus*. Uneasiness was expressed on 16 June. By the 18th, it was mentioned that “Dr. J. Eights” (obviously, Jonathan) was a member of the medical staff of the city of Albany; they were advising citizens in regard to cholera. On the 19th, more grist for the mill: and notice that prayers against cholera would be held. On 30 June, Jonathan Eights, as chairman, signed a letter, joined by several other doctors, attesting to the healthfulness of Albany — the city had no cholera.⁴⁴

But, soon, the rosy glow faded. A headline from New York City was reprinted: “CHOLERA IN NEW-YORK” — the watchword was “Be Careful, but Fear Not.” The account was a puff of reassurance, with much pontificating as to causes and remedies. And, gradually, Jonathan Eights found himself reporting the number of cases of cholera in Albany. On 31 August, there was a summary report on cholera in Albany: There had been 1,120 cases, with 392 deaths. One statistician of the day opined that “Thursdays have been on the average the mildest, and Saturday’s the most severe.”⁴⁵

Human interest stories abounded. There was (23 August) the macabre tale of an 80-year-old man on an extended stagecoach journey, when he came down with what appeared to be cholera. Fellow passengers would not let him ride with them; no inn would put him up; he was finally strapped to the top of the coach and carried to his destination, his brother’s house — where he was refused entry, being put into an out-building, where he died before medical attention arrived.⁴⁶

Supposed causes and treatments abounded, accompanied by phony analyses, such as long accounts of last meals of deceased persons. As an example, in New York City, “A man was attacked with cholera after dining and supping upon Lima beans.” Maybe it was the “supping” that did it!⁴⁷

By 1 September, cholera was letting up in Albany; some connection between the remission

and near-freezing cold was postulated. A full account of the 1832 cholera season in Albany was still news when released by Henry Greene in April 1833.⁴⁸

Jonathan Eights remained active in many fields. There are numerous references to him in Albany Institute affairs (he served on the announcement committee, in respect to lecturers, for example) and the State Medical Society. Numerous accounts of the St Nicholas Benevolent Society are to be found, with Jonathan often noticed as participating, both as a toaster and as its physician. He was chairman (9 January 1839) of a Committee of Medical Profession of the City of Albany which proposed the incorporation of a hospital for the city. In 1839, Eights used his big guns against what he considered unprofessional conduct of practitioners of Thomsonian medicine. His letter divided medical opinion in Albany. The battle was carried forward, with the newly active Albany Medical College involved. Part of the flap was Eights's demand that Thomsonists not be allowed to attend AMC on an equal footing with regular doctors. (AMC, under the leadership of Alden March, held its first commencement on 1 October.)⁴⁹

In 1840, in the height of the political campaign, the openly partisan *Argus* issued a scorching attack on an organization the editor considered a notorious hotbed of conservatism in previous days, the "Washington Benevolent Society." Although he knew the Society was long defunct, he felt sure that surviving members were unrepentant and still of their earlier, Federalist persuasion. As a guard against their exercising any influence today, he felt obliged to publish their names — and did so! He listed 67 men (including Jonathan Eights) but was forced two days later to recant to the extent of two names on the list, for the men were now firm "Republicans" (that is, today's Democrats).⁵⁰

Age did not dampen Jonathan's interest in the sublimities of nature. We find him writing to Dr. Theodric Romeyn Beck on 29 April 1842, inquiring whether anyone else had reported upon a particularly brilliant display of the *auroa borealis* he had witnessed on the night of 15 April. It also reflects upon the hours that Dr. Eights was forced to keep! "I was returning

home between two and three o'clock — the whole night had been illuminated by the brilliancy of the aurora, but at the time I mentioned, the whole northern hemisphere was peculiarly so. It extended from a line somewhat south of west, to the northeast. But what rendered it the most remarkable was the waving or rolling of the corruscations or flashes of light, rising in the west and extending to the zenith in quick succession, resembling the rolling of flames in a great conflagration." The color had been mainly in the nonreds, else the resemblance to actual flames would have been very realistic.⁵¹

Jonathan Eights died 10 August 1848. According to the *Daily Albany Argus*, his "relatives, friends and acquaintances" were "respectfully invited to attend his funeral, this afternoon, at 4 o'clock, from his late residence, No. 60 North Pearl street."

By the time of his funeral (as reported in the same issue of the *Argus*), the Albany County Medical Society had met and unanimously adopted a motion by Dr. Bay and seconded by Dr. March noting the Society's deep sorrow at news "of the death of its worthy and venerable member." By his death, it was noted, "the society has lost a member, who, from its foundation, has always been ready in promoting its interests and its dignity, and who, by the purity of his life and by his faithful and disinterested discharge of his duties during a practice of half a century, has been an ornament and an example to the profession." Members were asked to "show our respect for his memory" by attending his funeral and wearing "the usual badge of mourning." (The latter could be had from the establishment of Van Schaack, "4th Store below Hudson street," where "Mourning Breast Pins," in either jet or Berlin, might be had "at very low prices.")

The Masons Master Lodge No. 2 also met "on the 11th of August, A.D. 1848," when tribute was paid to "our much respected and beloved brother and late M.W. Master, Doctor Jonathan Eights."⁵²

We know nothing of the atmosphere to be found at the Eights residence upon news of the passing of its master but some appreciation of its gravity may be gathered from a reading of

the will of Jonathan Eights and its attendant legal notations. It was earthy and to the point and cannot have been any comfort to James Eights.⁵³

It was proved and recorded 13 September 1848. "I Jonathan Eights of Albany physician make this my will, as follows:

First. I give to my daughters Alida and Catharine all or so much of my household furniture plate pictures and ornaments as they may select; also my pew in the Second Presbyterian Church and its books and furniture; also one Bible for each to be by them selected from my family library; and also so much of my family library as they may select not exceeding one hundred dollars in value; also all fuel and provisions provided for family use which I may leave —

Second. I direct that all the rest residue and remainder of my property both real and personal be by my executors sold or converted into money or good securities and out of the same that all my funeral expenses and just debts be paid and the balance by them invested and reinvested upon bond and mortgage or other good security and the nett [!] income thereof applied to the use and support of my beloved wife Alida and my said daughters Alida and Catharine during the life of my said wife Alida; and at her decease the whole to go to my said daughters and the trust terminated. ...

[New line] I authorize my executors to execute conveyances for any property real or personal, to collect, compound or compromise any debts or demands due me and full discharges to make; also to execute any contracts in relation to real estate which I may leave unexecuted. Sales of my property may be made at private or public sales."

Then, for James, the punch line: "I have left nothing to my son James, knowing that he is capable of supporting himself, and as I leave a scanty income to his mother and sisters; but recommend to him industry temperance and the practice of religious and moral duties."

And for Alida, his wife of many decades:

"The provisions herein contained for my said wife is [!] intended and to be by her taken in lieu of and in full discharge of dower and of all claims upon my estate. But if she elects to take dower [one supposes the usual one third of the husband's estate] then she forfeits the provisions herein made for her and the same is not to go to her, but shall go to my said daughters."

"I appoint my beloved daughter Catharine executrix and my friends James N. Cobb [wealthy New York businessman, husband of his younger sister Phebe] and Otis Allen [looks like "Allin" here, as elsewhere in the document; an attorney in Albany; he was Israel Williams's law partner and married Amelia Burton, Jonathan's niece, in 1838] . . . each to be liable for their own acts and not for the other."

On 26 August 1846, the will was witnessed by James Burton (son of Jonathan's sister Catharine and John Burton) and Abram E[ights]. Williams (son of his sister Rachel and Israel Williams, 1818–1893).

The will packet was annotated on 30 August 1848 by "Lewis Benedict, Jr., Esq., Surrogate of the County of Albany" confirming the death of Jonathan Eights on 10 August, etc., and referring to the will of 26 August 1846. He left his wife and "three children, James[,] Alida and Catharine Eights, all living in said city of Albany," and all are required to be present before the surrogate "on the twelfth day of September A.D., 1848."

In addition, on 5 September 1848, Otis Allin [!], Commissioner of Deeds, Albany County, swears (etc.) that he served the above on the fifth day of September on "Alida Eights widow of Jonathan Eights, James Eights, Alida Eights & Catharine, the persons named"

Thus, James heard the full measure, whether he would or not, and, by 13 September 1848, Catherine Eights had taken the executor's oath and Abram E. Williams and James Burton had reaffirmed their witnessing of the last will and testament of Jonathan Eights.

Jonathan's widow, Alida Wynkoop, did not live long. Her death was announced in the *Albany Evening Journal* (not in the *Argus*) on Wednesday, 16 May 1849: "DIED: / In this city, on the 15th inst., Mrs. ALIDA WYNKOOP,

widow of the late Dr. Jonathan Eights, in the 77th year of her age. / The relatives, friends and acquaintances of the deceased and those of the family, are invited to attend her funeral at 3 o'clock on Thursday afternoon, from her late residence, No. 8 Fayette street."⁵⁴

Little is known of the subsequent fates of daughters Alida and Catharine. Alida married Daniel Palmer (when, I do not know) and the couple lived in Ballston Spa; Alida died 27 December 1862, Palmer died 25 August 1880; it was in their home (by a route that will be clarified in the next chapter) that her brother James died in 1882. Catharine, unmarried, died of an ovarian cancer at Greenfield Center, Saratoga County, 2 January 1878. The daughters may have lived, even previous to Jonathan's death, in the family of old maid Eights women (the "Misses Eights") at 23 Columbia in Albany.

Alida Wynkoop promptly moved into 8 Fayette, where she soon died. James was not listed in the Albany Directory for 1849 through 1852 (having previously always been listed as a member of Jonathan's family at 60 North Pearl); and, indeed, the annual Directory never listed Alida and Catharine, so it is not possible to say when they left Albany.⁵⁵

With this dribble of information, the story of the old order ends. We now return to the birth of James Eights and the story of his life and times.

NOTES

1. My debt to Char Miller will become more and more evident as this work moves along. He and Naomi Goldsmith broke new ground in research on James Eights in modern times. The amount of basically new material on Eights in their study, "James Eights, Albany naturalist: New evidence," will astonish anyone who thought he previously knew James Eights. In addition, Char published a list of articles written by Eights, "The scientific career of James Eights: an annotated bibliography," that adds enormously to our understanding of Eights's role as author. Along the way, Char gathered an impressive amount of material on the Eights family and has generously made it available to me. I have used it freely and only he and I know how much I owe to him.

2. JE's Floral Calendar was mentioned in *The Country Gentleman*, 2(33): 108, 18 Aug 1853. For the Antarctic plant fossil, see: JE, "Description of a new crustaceous animal," p. 64, and W.J. Zinsmeister, "Early geological exploration of Seymour Island, Antarctica."

3. Louis Agassiz, *Bibliographia Zoologiae et Geologiae*, 1854; G.B. Goode, "The beginnings of American science, the third century," 1897 (Pt. II, 1901); Carroll Lane Fenton and M.A. Fenton, *Giants of Geology*, 1952; G.P. Merrill, *The First Hundred Years of American Geology*, 1924; G.W. White, *Essays on History of Geology*, 1977. These authorities are negative for Eights. M. Ellis, "Index to publications of the New York State Natural History Survey and the New York State Museum," did little to document JE's work in New York; a better estimate of JE's contribution to early New York geology can be found in J.W. Wells, *Early Investigations of the Devonian System in New York, 1656-1836*, pp. 59-61.

4. The portraits of JE will be discussed later.

5. All these points are best documented at a later time.

6. JE's pycnogonid was announced in "Description of a new animal belonging to the Arachnides of Latreille," 1835.

7. See later chapter for the pycnogonid and its role in JE's rediscovery.

8. C. Miller and N. Goldsmith, "James Eights" (1980); C. Miller, "The scientific career" (1980 [1982]); C. Miller, "The family Eights: five generations in America" and notes for "An Eights genealogy," both unpublished. Jonathan Pearson, *Contributions for the Genealogies of the First-settlers of the Ancient County of Albany*, index, p. ix; best of the early genealogical references to the Eights family but must be used with caution.

9. For Elizabeth (Eights) Hilton, see Anon., 3 Apr 1838: "DIED, / On Saturday last, 31st ult. in Guilderland, Mrs Elizabeth Hilton, relict of Peter W. Hilton deceased, and sister of the late Abraham Eights of this city, aged 90 years." That is, she died 31 Mar. It appears probable that she was widowed in 1786 by the death of Peter Hilton (no middle initial given), "of Sarotogo [?], Albany County. Wife — [not named], son Richard and other children, not named. Real and personal estate. Executors Abraham Eights and Jacobus Vansanti. Witnesses Peter W. Douw, Jacob van Shaick and John Sheperd" (Berthold Fernow, *Calendar of Wills . . . Albany . . . 1626-1836*, p. 200). (This is marginally annotated: "868 (H 113) / 1783 / Octbr. 6 / 1786 / Feby. 23," indicating that it was written in 1783 and proved 1786, the probable year of death, when Elizabeth would have been about 38 years old if, as supposed, she was born in 1748).

10. Dirck Benson and others are mentioned in Anon., 1993, item 131, an account of Anthony Duane and family. For Dirck (Derick) Benson, father of Catharine, who married Capt Abraham Eights, father of our Father Abraham, see: S.V. Talcott, *Genealogical Notes of New York and New England Families*, p. 12.

11. For comments on the life and character of Father Abraham, see his funeral sermon, "Mourning for the righteous," by the Rev. Arthur J. Stansbury. Stansbury (1781-1865) left Albany (and his pastorate) in Feb 1821 and went to Washington to be (for 30 years) the reporter of Congressional debates for the *National Intelligencer* (J.M. Blayney, *History of the First Presbyterian Church of Albany*, pp. 28-29). G.J. Tucker, *New York Marriages Prior to 1784*, p. 126, records the marriage of Father Abraham and Catharine Brooks (16 Jun 1770) and of his sister Mary (Marie) and Hendrickse (spelling varies) Bradt (25 Mar 1776).

12. Transcriptions of records of the First Presbyterian Church of Albany by R.W. Vosburgh, 1917, unpubl. MS.

Albany County Hall of Records, seen courtesy of Tracy B. Grimm.

13. See Note 12; I am also indebted to Robert A. Alexander, historian of the Church, for help. I have numerous notes on the family of Ann Eights and Joseph Boies (Boice) from Mildred (Carswell) Sharpe (still living, Sep 1988), wife of Robert Boies Sharpe (1897-1982), great-grandson of Ann and Joseph Boies.

14. Jonathan Eights, letter to William Bay memorial committee, see W. Bay, 1847. Alida Wynkoop seems to have been born in 1773. She may have married Jonathan Eights when she was about 20 years old, for she is said to have accompanied him to Canajoharie about 1795. Joel Munsell, *Annals of Albany*, 6: 198, "Reformed Protestant Dutch burial ground inscriptions," lists two deaths that may be of interest: Jacobus Wynkoop, d. 4 May 1795, aged 74 years; and "Alida, wife of Mr. Jacob Wynkoop, who departed this life Oct. 16, 1794, aged 58 years and 5 days"; perhaps they were parents of our Alida Wynkoop.

15. I am grateful to Tracy B. Grimm, Archivist, Albany County Hall of Records, for retrieving this document for me.

16. S.D. Willard, *Annals of the Medical Society of the County of Albany, 1806-1851* (1864), p. 20. F.W. Beers & Co., *History of Montgomery and Fulton Counties* (1878), p. 70, indicates that the Montgomery County Medical Society formally began in 1806.

17. Since Jonathan Eights moved to Albany in 1810, as did Bay, their service in Albany at the time of his letter was the same; I presume Jonathan included his prior service in Canajoharie and elsewhere, while Bay measured his entire career from 1810.

18. E.D. Giddings, *Coeymans and the Past*, pp. 68-69. Extensive correspondence has failed to turn up anything on merchant Dumont and his receipt book; at one time, a correspondent gave hope that the Dumont material would ultimately be sent to the N.Y. State Archives.

19. N.Y. State Archives, NYSL/PA 18448, Box 14, Coeymans Reformed Church Records, Baptisms, Marbletown Volume, Coeymans, S. Potter, 1903, 237.

20. Albany Rural Cemetery archives; a stone and an entry on an index card claim burial of an "Abram W. Eights" who died January 1, 1822, in Lot 53, Section 56, Burial no. 3.

21. Anon., 12 Dec 1817, reported that Abraham, June, "eldest son of Doctor Eights," died 6 Dec 1817, "aged 21 years." Anon., 7 Nov 1836: Abraham C.W. Eights died 7 Nov 1836; some information on him is to be found in archives of Albany Academy for Boys.

22. In July 1845, Albany Rural Cemetery (which "combines the dark dell in the shady retreat — the limpid brook and the trickling waterfall") was still being laid out (Anon., 3 Jul 1845). Contemporary notices include queries whether Albany church cemeteries — then well within what is now city limits — were to be removed to the new cemetery; see Albany Rural Cemetery, *Albany Rural Cemetery Association* 1846. James N. Cobb, wealthy son-in-law of Father Abraham, purchased lots for "the heirs of Abram Eights" in 1848 (I am indebted to officers of ARC for this information); dates of reburials of previously deceased members of the Eights clan are not recorded.

23. S.D. Willard, "Historical address," pp. 20-21; Willard, *Annals*, pp. 44, 253; Joel Munsell, *Annals of Albany*, 5: 48; 7: 143, 153. Willard, *Annals*, pp. 253-254, notes

that it "was as a family physician that he [was] held in highest esteem; his personage was large and impressive, his manners quick and dignified, his scrutiny rigid and severe."

24. F.W. Beers & Co., *History of Montgomery & Fulton Counties*, p. 70, etc.; W. Frothingham, *History of Montgomery County*, pp. 162, 163; U.S. Census, 1790 (1908), *New York, Heads of Families*, p. 99.

25. T. Bolton and I.F. Cortelyou, *Ezra Ames of Albany*, p. 28.

26. J. Henry, *Papers*, vol. 1, pp. 68, 69, 75, 76, 92; Albany Inst., "Dues and memberships, 1823-1833" (MS), "Minutes," 1824-ff (MS); for St. Nicholas Benevolent Society, see *Argus*, 17 Nov, 10 Dec 1831; 15 Dec 1832; 16 Dec 1833; 10 Dec 1838.

27. G.R. Howell and J. Tenney, *Bi-Centennial History of the County of Albany*, p. 725; U.S. Census, 1790 (1908), *Heads of Families, New York*, p. 14. Slavery was abolished in the state of New York on 4 Jul 1827, when some 10,000 slaves were freed; see *Argus*, 3, 7 Jul 1828 for accounts of celebration of the first anniversary of manumission; I am grateful for help from W.G. Balla, his letter 20 Oct 1995.

28. J. Munsell, *Annals of Albany*, 9: 108 (reference to Humphrey), p. 166 (Eights-Treat partnership).

29. Willard, *Annals*, pp. 6-7, 20, 21, 23.

30. Willard, *Annals*, pp. 28, 29, 44, 49, 51.

31. *Argus*, 9 Feb 1816; 5, 22 Jan 1819.

32. *Argus*, 1 Jun 1821.

33. Willard, *Annals*, pp. 55, 135, 252, 253.

34. *Argus*, 30 Jan 1824.

35. *Argus*, 3 May 1825.

36. *Argus*, 29 Jul 1826.

37. Willard, *Annals*, p. 252; F.B. Hough, *Historical and Statistical Record of the University of the State of New York*, pp. 842-843.

38. *Argus*, 22 Apr 1830; 9 Jun 1830; 11 Feb 1831; his second address as president, 1831, on "Puerperal fever," appeared in *Transactions of the Medical Society of the State of New-York* (*Argus*, 18 May 1832); Willard, *Annals*, p. 253.

39. *Argus*, 7 Sep 1831; Albany City records in Albany County Hall of Records, Common Council Minutes, 25 Sep 1831 — see p. 303; my thanks to Mayor Thomas M. Walen, III, letter 26 Nov 1991.

40. *Argus*, 7 Sep 1831; Common Council Minutes, pp. 321, 322.

41. *Argus*, 7 Sep 1831.

42. *Argus*, 20 Jun 1832.

43. *Argus*, 13 Mar 1834; C. Hislop, *Albany, Dutch, English and American*, p.304. This shows up the naivete of David Lithgow (Anon., 1934), in his commentary on his painting showing State Street in 1805: Of course, there were no hogs in his painting, for Albany was already a civilized city!

44. *Argus*, 16, 18, 19, 30 Jun 1832. As for Jonathan Eights, more of his energy that summer was expended on settling the will of an obscure New York City man, John Haberdink (or Harberdink; both spellings appear in the *Argus*; I can find no information on him in standard references), than in protecting Albany from cholera; see the *Argus* 22 May, 1, 7, 14, 20, 23 Jun 1832. It was not until July that cholera gained the local spotlight: *Argus*, 30 Jun; 6, 9, 21 Jul; 2, 22, 24 Aug 1832.

45. *Argus*, 3, 6, 9, 21 Jul; 2, 31 Aug 1832

46. *Argus*, 23 Aug 1832.

47. *Argus*, 27 Aug 1832.

48. *Argus*, 1, 5 Sep 1832; 30 Apr 1833. W.E. Rowley, in: "The *Albany Microscope*: gadfly for Jacksonian democracy," pp. 182-183, points out that the establishment newspapers did not do the best of reporting of the cholera plague that took 416 lives in Albany in 1832. They frequently took their cues from fundamentalists and ranting temperance groups who were all too ready to blame the disease on immigrants, the poor, and drinkers, all presumably "sinners receiving divine judgment." No doubt part of the reason for the *Albany Microscope's* sanity may have been its ebullient antagonism to the temperance reformers, but they were on sound ground to note that panic did no good, while the dead included "temperate or intemperate — dissolute or respectable — young and old — black and white."

49. Jonathan was physician for the St. Nicholas Benevolent Society (*Argus*, 23 Nov 1832; see notices of the Society, 6, 15 Dec); he offered toasts at its festivities (*Argus*, 16 Dec 1833; 10 Dec 1838). T.R. Beck included Jonathan's data for 1813-1814 in a paper read at the Albany Institute on "Abstracts of meteorological observations made at the city of Albany" (Jonathan Eights, "Letter on climatic records," *Argus*, 12 Nov 1831; 21 Mar 1833). Thomsonism: see *Argus*, 21, 25 Sep 1839; Eight's colleague Peter Wendell refused to sign his strongly worded letter. Albany Medical College: *Argus*, 1 Oct 1839.

50. *Argus*, 26, 28 Sep 1840.

51. For Eights's letter on the aurora, see 56th Annual Report of the Board of Regents for 1842. The recording of auroral activity was popular; see Anon., 1842 for accounts taken from Albany newspapers.

52. Anon., 12 Aug 1848; Jonathan's library was sold at auction, no details recorded, 7 Feb 1849 (Munsell, *Annals*, 1: 343). It appears that James N. Cobb's first purchase of lots for the burial of heirs of Abraham Eights was 19 May 1848 — thus, Jonathan Eights may have been the first family member to be buried there directly after death (see records, Albany Rural Cemetery). A monument to Jonathan and his wife was in place by at least 1864 (Willard, *Annals*, p. 254).

53. Albany Surrogate's Court, Will books, vol. 13, p. 343. Since this is a handwritten document, I have retained its underscored words in my transcription. In regard to Jonathan's pew in the Second Presbyterian Church, it suffices to note that this church was organized and admitted into Presbytery in October 1815; see J.M. Blayney, *History of the First Presbyterian Church of Albany*, p. 28: To both it and the Third Presbyterian Church "... our own dismissed some of its members." Neither of these churches survives today.

54. Anon., 16 May 1849.

55. Alida Wynkoop was buried in Lot 53, Section 56, Albany Rural Cemetery. I have checked Albany directories for Eights-related addresses for all years from 1841 through 1882.

JAMES EIGHTS FINDS HIS LEGS: FROM BIRTH TO THE ERIE CANAL YEARS

Little is known of James Eights's early life. No one has recorded a birthday and even his year of birth is uncertain. Most authors say he was born in 1798, perhaps because he himself may have at one time said so; perhaps most authors follow records at Albany Rural Cemetery. Char Miller gives his age at death on 22 June 1882 as 84. A Ballston Spa newspaper recorded his age as 85 (a date followed by Albany Rural Cemetery), although this may have meant he was "in his 85th year" — that is, his 84th birthday had passed. For him to have been 85 full years old (that is, born in 1797) would introduce a conflict with information on the date of baptism (and likely date of birth) of his older brother, Abraham. On Greenfield census schedules (probably applying to midyear) for 1875, he himself or his sister Catharine, with whom he was staying, gave his age as 76 — that is, that he had by then had his 76th birthday. That would make his year of birth the second half of 1798 or the first half of 1799. Since he was baptized at Coeymans Reformed Church 1 May 1799, I suspect he was born in that year — that is, he was 83 or, if you prefer, "'in his 84th year" when he died.¹

A general identification of James with Albany has fostered the notion that he was born there and lived there all his life. This is a too-hasty conclusion drawn from a belief that his famous Albany street scenes represent intimate personal knowledge of the city in the years 1805 to 1807. If James knew Albany at all at that time, it was from casual visits at a tender age.

The drawings were, in fact, made long after the time they represent, by a painter who did not live regularly in Albany until 1810, when Jonathan removed his family and practice from Canajoharie.

Intimations that James was at least born in Albany are subject to serious doubt. He seems most unlikely to have been born in Canajoharie, where some authorities incorrectly place his family at about the time of his birth. To the riddle must be added the possibility he was born in Pennsylvania, as recorded on Town of Greenfield census schedules for 1875. This can only mean that Jonathan was accompanied by his wife and young son Abraham when he left Canajoharie and went to Philadelphia to improve his knowledge of medicine. If, as Jonathan claimed in 1847, he returned from Philadelphia in 1798, this would imply that James was born in that year. Jonathan's memory seems imprecise and muddled in regard to these critical years. Still, it is possible the Eights family returned from Philadelphia, with the infant James in hand, in early 1799 and then removed with him to the vicinity of Coeymans where he was baptized.

There is no record of James's schooling. It may have been by private tutor and perhaps it was entirely within the family. Although the Albany Academy was founded in 1813, in time for him to have been a student there, there is no evidence he was ever associated with it.²

Since he frequently called himself and was called by acquaintances "Doctor Eights," we

may assume that some sort of certification legitimized the title. That he never regularly practiced is beside the point: What basis, in fact, was there for the title? Did he undertake an internship in the office of a friendly doctor in Albany? Was it in his father's office only? When did it occur? By James's time, this would have been an uncommon way for anyone to claim legitimately to be a doctor fitted to practice. Despite his frequent use of the title of "Doctor" or "M.D.," records of his having practiced the arts of medicine are few. While on the Antarctic expedition of 1829–1830, he claimed to have been "Surgeon & Naturalist" on the *Annawan*. Maybe anyone with a smattering of medical knowledge might dose (and be allowed to dose) sailors on the high seas. He was, however, also "Hospital Surgeon" to Albany's Third Brigade Horse Artillery, of the New York State military establishment in 1831–1836. Whether his titles there of "Doctor" and "Major" were both somewhat ceremonial in nature cannot be said.³

THE ERIE CANAL: A MAN, A PLAN ...

James Eights was already referred to as "Doctor Eights" by the time of the tour of the Erie Canal by Eaton's students from the Rensselaer School in 1826. This, despite the loom of his father as bearing that well-known name.

In any case, James Eights came to the world's attention not from official records of birth, education, and training, but from happenstance connection, beginning in 1822, with a geological and agricultural study of lands adjoining the great Erie Canal, then a building under the leadership of Governor DeWitt Clinton.

The Canal was a fabled undertaking that was to mix the waters of Lake Erie with those of the Hudson River and, beyond the latter, the seas of the world. It was "Clinton's Ditch" — and things less complimentary if you differed with his vision. I leave its rich story for others to tell.⁴

The geological survey was a product of the "unparalleled munificence" of "the Patroon," Stephen Van Rensselaer, and the fertile mind of Amos Eaton. It can hardly have been an acci-

dent that Stephen Van Rensselaer's philosophically generous, almost Jeffersonian, coat-tails would be grasped by interested parties. That they were clung to by such an essentially benign exploiter as Amos Eaton lends a fairy-tale quality to the story.⁵

But, first, how did James Eights become a part of the retinue? So far as can be seen, it began with a letter from the eminent doctor and teacher Theodric Romeyn Beck. An intimate of Jonathan Eights and well-known to Amos Eaton, he wrote to Eaton from Albany 10 September 1822:

Dear Sir / I was informed that you passed through this city on Sunday last — on your way to Troy. — In accordance with a promise which I made some time since, I now address you — You are acquainted with Dr. Eights. He has a son about 22 or 23 years of age who has a taste for the natural sciences & is desirous of accompanying you on your excursions along the canal. I presume (though I have had no conversation on that point) that he will wish his expenses borne & some small compensation — If you can take him, pray inform his father — & the terms may then be arranged. I may add that Mr. Chas R. Webster joins me in the wish that (if consistent with your arrangement,) you should have him as an assistant. / When you visit Albany, I should be glad to see you. / I remain yours / Sincerely / T R Beck.⁶

James got the job, terms of contract unknown. What was the survey all about?

Publicly, a chatty little Albany literary light called *The Ploughboy*, which got the story from the *Albany Daily Advertiser* (a newspaper as completely lost to the present world as its copier), probably had it right. In its issue for 10 September 1822 (no doubt a little-modified communication from Eaton himself), the story was as follows:

UNPARALLELED MUNIFICENCE.

The honorable STEPHEN VAN RENSSELAER has engaged Prof. A. Eaton, of Troy, to take a Geological and Agricultural survey of the Great Canal route from Albany to Buffalo, a dis-

tance of 380 miles. The survey is to include the breadth of ten miles. An accurate investigation of the rocks, soils, minerals and plants, is to be made on both sides of the canal. The method of culture adopted by the best practical farmers is to be sought out, and all the varieties of soil to be analyzed.

Similar surveys of the transition district of Rensselaer county, and the transition and secondary district of Albany county, having been taken under the patronage of Mr. Van Rensselaer; the proposed survey, across this secondary region, will furnish a practical view of all the varieties of formation, soil and culture in the state; except the primitive districts, which are very limited.

The result of this survey is to be published, with a geological map and tranverse [!] sections. It will form a complete manuel [!] for the travelling geologist and botanist, as well as for the practical agriculturist.

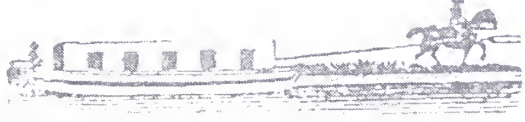
The survey is to be commenced in November. No more will be done this season, however, than to make a general outline of the geological formations, in order to prepare a sketch to be filled up hereafter. The survey will be resumed next April, and continued through the summer. It is not known how much time will be required for its completion. But from a comparison of former surveys, taken by Dr. [T.R.] Beck, and Mr. E. we have reason to believe it will be completed, so as to be published in a year from next January.

It is to be presumed that the farmer, and landholders on the route will be prepared to give all the information required, in aid of the undertaking. Every unknown mineral should be collected; and every locality, where there are any signs of ores, coal, gypsum, &c. should be searched out, and ready for inspection. For surely, if Mr. Van Rensselaer will be at the expense of giving them an opportunity to learn the true state of their own resources, they will be both assiduous and hospitable, and furnish Mr. Eaton all the aid in their power.⁷

For his part, having prepared flying surveys of the geology and agriculture of Albany and Rensselaer counties for the Patroon, Eaton was anxious to extend coverage to the entire state.

The Erie Canal would provide him with a representative strip across the state. It was not an opportunity to be missed and, fortunately, Van Rensselaer saw it his way. Eaton's proposal can be guessed from the Patroon's comments, as recorded by E.M. McAllister, in her biography of Eaton. "I have long contemplated the examination you propose," wrote the Patroon 30 August 1822, "but was apprehensive it would exceed the means of an individual in point of expense — Your calculation is so moderate that I willing[ly] will engage in the enterprise provided you do not expend more — you are the best judge & if you undertake the business in these terms — you may calculate on paying your orders to...[me]."⁸

THE LA FAYETTE
Canal Passage Boat Company



IN TEND running a line of Boats between Albany and Waterford. A Boat will start from Albany and Waterford at 9 o'clock A. M. stopping at the intermediate places, and leave each place at three o'clock P. M.

For the present, the *MINERVA* Wm. Kane master, will perform one trip daily until the new boat, *La Fayette*, now building, shall be in readiness to take her place in the line.

Persons desirous of taking a short excursion on one of the most interesting sections of the whole line of Canal will find it to their advantage by availing themselves of this route: as they will have an opportunity of viewing the Coboes Falls, and pass the Side-Cut and Weigh Lock opposite Troy, and the Nine Locks at the Junction.

The *Minerva* has lately been put in complete order, and for neatness and beauty is surpassed by no Passage-Boat on the Canal.

By order of the President.
 C. N. BEMENT, Sec

Figure 2.1. A boat on the Erie Canal, similar to the one used by Eights and others in their tour to Niagara. Asa Fitch referred to such boats as "A coffin clapped in a canoe." (from advertisement in *The Microscope*, 1825, page 40.)

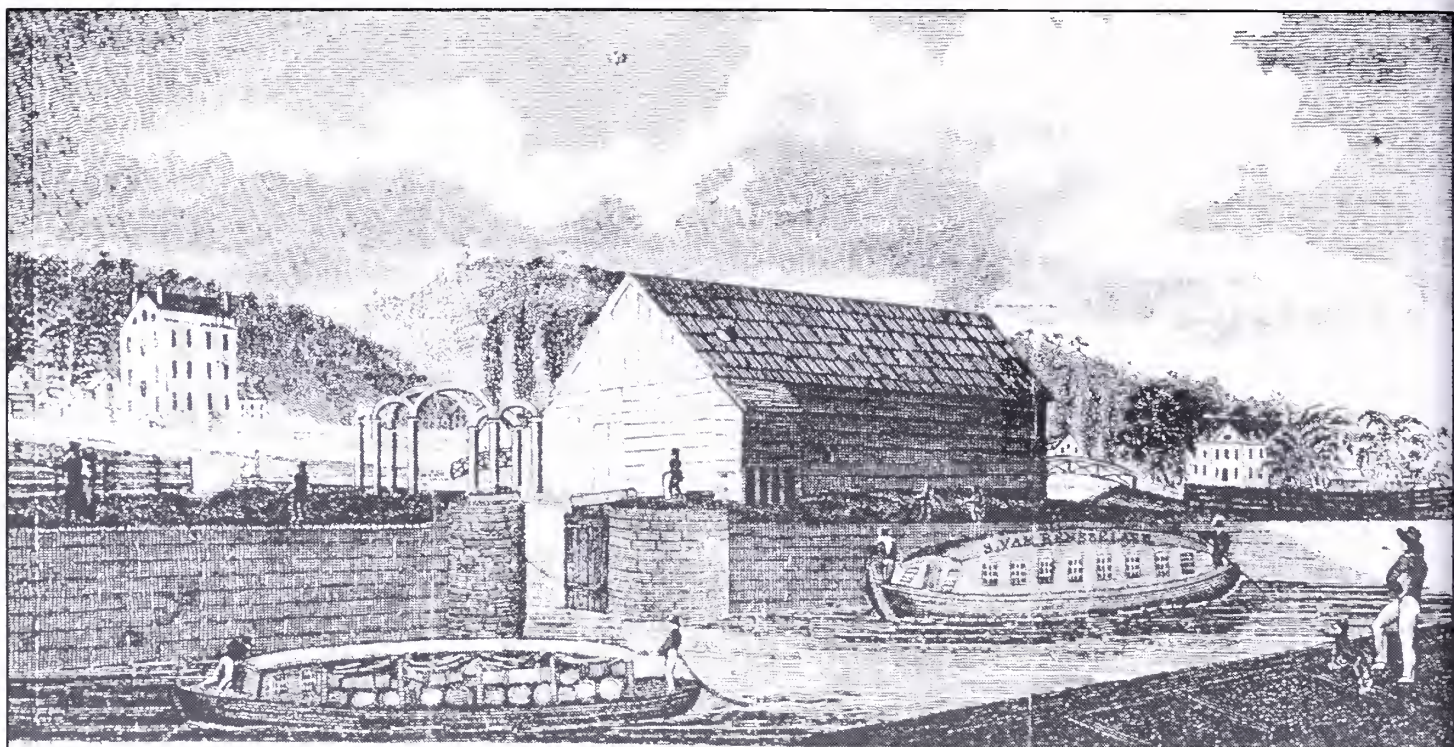


Figure 2.2. Entrance into the Erie Canal near Albany. From a drawing by James Eights, used as a vignette in a folding chart prepared for Amos Eaton's "A geological and agricultural survey of the district adjoining the Erie Canal" (1824). The original drawing, given to the Albany Institute by Eights, cannot now be found.

But the Patroon was cautious. The same day, he wrote further: "I am pleased with your progress in the useful work. I hope it will add to your reputation which will repay me for any expense [provided it was not too much!].

"I approve of your plan to associate either of the gentlemen you have named [Matthew Henry Webster and Eights?]. I think it all important as you propose a change in the nomenclature that you have the sanction of a scientific Geologist & one known to the public. I will mention the business to Professor [Benjamin] Silliman. I regret that I cannot accompany you, the views will be ornamental — you will make the necessary arrangements for the tour."⁹

Maybe Eaton's services were a bargain but he had not lost his ability to aim high. Even so early as this, he had determined on having, in addition to geological sections, illustrations of the sort that James Eights helped to provide.

Despite his somewhat amused private opinions of Benjamin Silliman, who was then labori-

ously promoting his young brainchild, *The American Journal of Science* ("a good cabinet mineralogist. ... With very little knowledge of geology, he affects much"), Eaton was willing to do anything necessary to breathe life into his canal survey. Eaton thought Silliman "quite too formal for a man of science." (A twentieth-century reference to Silliman, with reference to his naivete, as "Sober Ben" comes to mind.)¹⁰

Silliman agreed to check and authenticate nomenclature of rocks and strata for areas of the state with which Eaton was not familiar. The method, merging Eaton's geology, already a patchwork of slender observations, home-grown theorizing, and uncritical import of European decrees with Silliman's closet knowledge, worked only because it had not been attempted before. It had at least the useful outcome of putting some new observations on record.

Eaton was not averse to puffing himself a little when he wrote to Silliman on 2 September 1822. The Patroon had "concluded to take a

Geological and Agricultural Survey across our state, following the canal rout. You know he always calls on me in such cases; and I have, *of course*, engaged to undertake it. I am to go through and take a kind of outline this fall This is to prepare me for making my arrangements the better next spring. I suppose I shall begin in April and continue through the summer." He *might* "spend one or two seasons about it," although he hoped "to compleat it by Dec. 1823. A geological map and a profile section will be published with my report."¹¹

And begin Eaton did. He went to Albany on 5 November and received instructions from the Patroon "respecting the proposed Geological Survey of the Canal rout, from the river Hudson to Lake Erie." On Monday, the 11th, "Commence an examination of the Canal rout this morning at 11 o'clock, in company with Matthew Henry Webster, in a one horse wagon." There is here no mention of James Eights. To what extent he participated in field work is unknown. Perhaps his job was restricted to that of draftsman and, later, colorist.¹²

Just what James had to work with is problematic. Eaton spent spare time during the early winter in his cellar, with forge and bellows, analyzing mineral specimens from his hasty survey. Somehow, he supplied Eights with rough sketches that were made into a map and profile. Eaton wrote to Silliman 21 January 1823: "I have had a geological profile of the rocks drawn by one of my assistants of all the rocks from Troy to Genesee river. I have directed a copy to be taken for you." Busy days, those!¹³

No doubt Eaton was impatient, even so, that miracles took so long. James appears to have had no difficulty painting with the broad brush that Eaton thought constituted a proper approach to a truly democratic science (let the effete, pauperized societies of Europe account "for each atom of earth"). There had been no hesitation on the part of either Eaton or Eights in whipping off the four-and-one-half-foot-long map, with its vignettes of the Canal, the engraved plate for which cost the Patroon \$530.¹⁴

Just why Eights delayed the coloring of the maps is not clarified. On 22 January 1823,

Eights wrote, perhaps a little cheekily, to Eaton:

Dear Sir

I presume you must be heartily tired of waiting for the maps — I shall not however at this time attempt an apology for detaining them so long although they have been ready for some weeks — the one surrounded by ruled lines I intended for the Patroon — Should you want any more, you have but merely to intimate your wishes, and I will supply you abundently [*sic*]. The box [perhaps he meant the entire supply of them?] has not yet arived [*sic*] but we expect it daily — Webster wrote last week and requested him to send it immediately — when it arives [*sic*] we will either send or bring to you without delay — A few Copies of James's work has [*sic*] at length reached Albany — I have heard no opinion respecting it — Henry W. [Webster] is now perusing it when he gets through we shall know all about it. L.C. Beck will 'snap off' his [report?] next week [where Lewis Caleb Beck, brother of Theodric Romeyn Beck, comes in is not clear] — present my respects to the old man at Washington [the Patroon!] in your Epistle — also my compliments to Mrs. Eaton & family
Yours respectfully [*sic*],
James Eights

Amos Eaton Esqr.

NB. Give Willis the pictures.¹⁵

It is not clear what pictures were to be given to Willis, who is unidentified. As to the book by author James, not further identified, it seems likely to have been Edwin James's account of the Stephen H. Long exploratory expedition to the Rocky Mountains, although a now obscure John James, M.D., had recently published a book; both Jameses were active in Albany natural history circles.¹⁶

The map and the vignettes (three of the four by James Eights: "Entrance into the Canal in the Hudson at Albany" — the Rensselaer mansion in the distance, a canal boat aptly named "S. van Rensselaer" tied at the dock; "Aqueduct Bridge at Little Falls"; "View of the Aqueduct Bridge at Rochester") served Eaton well. As a long fold-out map, it illustrated his 1824 memoir, Eaton's most ambitious geological work to

that time. It was used in Cadwallader David Colden's *Memoir* of the finished Erie Canal in 1825. It must have been a blow for James Eights to read William Leete Stone's account of the Erie Canal in the Colden monograph, however, and find his name given as "J. Bights"! It appeared finally as an illustration (without further attribution, although with some revision) at the front of the number of the *American Journal of Science* that contained the first part of Eaton's "Geological nomenclature, classes of rocks, &c." in 1828, which was the scientific outcome of Eaton's canal survey. Again, Eights was inadvertently slighted: it was noted that "Mr. G.W. Clinton and Dr. I.[sic] Eights, have communicated very important facts," a reference to the article, not the map, of course. Perhaps both slights to Eights were due to Eaton's atrocious handwriting.¹⁷

While there is little record of Eights's identification with the survey itself, he did not rest on his laurels. He continued to cultivate his acquaintance with Eaton. The practical outcome of that was to encourage Eaton in a high opinion of Eights's abilities. Not only did Eights assist with conclusions reached in Eaton's crowning achievement, the 1828 publication of technical results, in his paper on nomenclature. He, (T.R./L.C.?) Beck, Joseph Henry, and G.W. Clinton joined Eaton in laying strategy for the timing of publication of parts constituting that paper. In order to give critics their chance, Eaton and his friends suggested that Silliman publish the first part in March, then leave June open for critics, and resume publication in September. One can hardly imagine so smooth an operation even in this day of electronic communication — nor an editor quite so flexible and compliant!¹⁸

THE RENSSELAER SCHOOL

We are now ahead of our story. What must not be forgotten is that the mind of Amos Eaton did not rest. With the Canal survey barely afoot, he joined his mentor, Van Rensselaer, in another project, and one in which James Eights became tangentially involved.

On 10 December 1824, the *Albany Argus*

reprinted from *The New York Statesman* the notice:

RENSSELAER SCHOOL. — The Hon. Stephen Van Rensselaer, with his characteristic liberality, and benevolence, has lately established an institution at the north end of the city of Troy, for the purpose of instructing persons in the application of *Science to the common purposes of life*. The Rev. Dr. Blatchford, of Lansingburgh, has been appointed president; Amos Eaton of Troy, Professor of chemistry and experimental philosophy, and lecturer on geology, land surveying, and the laws regulating town officers and jurors; and Lewis C. Beck, of Albany, Professor of mineralogy, botany, and zoology, and lecturer on the social duties, peculiar to farmers and mechanics. A suitable apparatus, library, reading room, and other appurtenances will be provided. The students will be required to give experiments [sic] in turn, in order to familiarize them with the apparatus and the principles derived from books. There can be no doubt, that this will become a useful institution, reflecting the highest credit upon the generous founder.¹⁹

Since this was a reprinted article, the *Argus* editor felt no reason to rail at Van Rensselaer's Federalist politics.

The rich story of the school I ignore here, except for a few points of contact with James Eights. (Incorporated on 5 November 1824, the school opened for instruction 3 January 1825; it became the Rensselaer Institute in 1832, Rensselaer Polytechnic Institute in 1849.) The founding of the school set the stage for one substantial project where Eights's name appears often, if seldom from his own hand: that of Eaton's pioneering field trip with students the length of the Erie Canal in 1826. That lark requires a sub-heading of its own. Meantime, Eights kept his foot in the door, perhaps not always at the instance of Eaton. Eaton cannily entrained the community's interest in his school by having well-known people supervise oral examinations of graduating students at gala occasions. For example, at graduation in October 1827, Eaton suggested to Van Rensselaer a list of names to be nominated as examiners. Van Rensselaer

promptly nominated them: substituting the name of "Dr. J. Eights of Albany" for that of his own son Cortland. I incline to believe that old-timer Jonathan Eights was meant but a doubt remains. If, indeed, James Eights was that "Dr. J. Eights," it was as close as he ever came to being a formal "instructor" at the school, despite an ambiguous claim by Eaton. When nominating Eights for a berth on the proposed exploring expedition in 1828, Eaton claimed warily that James had "been an assistant in giving instruction to the students of this school in Natural History." The precise arrangement is not known and was probably quite informal. It may have referred merely to Eights's participation in the Canal field trip in 1826.²⁰

A GRAND TOUR ON THE ERIE CANAL

Celebrations of the completion of the Erie Canal were held in the fall of 1825. Entrepreneurs were already at work on New York's canals. We see by Albany's ephemeral magazine, the *Albany Microscope*, on 14 May 1825, that "The La Fayette Canal Passage Boat Company...INTEND running a line of Boats between Albany and Waterford....For the present, the MINERVA, Wm. Kane master, will perform one trip daily until the new boat, *La Fayette*, now building, shall be in readiness to take her place in the line. Persons desirous of taking a short excursion on one of the most interesting sections of the whole line of Canals will find it to their advantage by availing themselves of this route; as they will have an opportunity of viewing the Cohoes Falls, and pass the Side-Cut and Weigh Lock opposite Troy, and the Nine Locks at the Junction." An accompanying cut shows a small boat with a windowed superstructure that provided some cover. A pilot occupied an open seat at the rear and a man on horseback towed in front. We shall see that somewhat more ambitious trips were soon to be undertaken but, one gathers, accommodations were not immediately much improved. The *La Fayette*, then unfinished, was destined to make history.²¹

With the founding of the Rensselaer School, its first year of classes, the initial geological survey of lands along the Erie Canal, and much

else behind him, the restless Amos Eaton broke new ground in 1826. He would take his students and men of talent on a grand tour of the new canal. For the students, it was what would today be considered routine: a field trip. At that time, it was an unheard-of innovation in teaching. As it turned out, the "men of talent" had other things to do (Professor Cleaveland of Bowdoin College had influenza; Benjamin Silliman's health was not the best; Professor Chester Dewey of Williams College had pressing business). As a result, talent was home-grown: and, indeed, not all that bad. Amos Eaton still had his ability to turn sows' ears into silken purses.

The *Argus* account was brief: *Rensselaer School, near Troy*. — "The annual commencement in this valuable institution, (which is said to have succeeded beyond the expectations of its founders) will take place to-morrow. After which, it is stated in the Troy Sentinel, the Students will proceed in a body on a scientific tour to the west, to Lake Erie and Niagara Falls. The expedition is to be conducted by Professor Eaton. The primary object is the study of natural history, and the collection of specimens in the different departments of botany, geology and mineralogy."²²

Four contemporary private accounts of the trip by participants have survived. While none is by James Eights, all were kept by writers who would leave a mark on New York history or natural history. One was Eaton, whose account is still mostly in manuscript and is slighted here. The others were daily accounts kept by more youthful travelers: George W. Clinton, son of Governor DeWitt Clinton, who ultimately became a distinguished jurist but would have made a capital naturalist (Eaton was soon to characterize him as "the greatest genius of the name — his father is a pygmy in comparison"); Asa Fitch, later a pioneering economic entomologist in New York; and Joseph Henry, the most noteworthy of Albany's scientific sons, who was later to put the Smithsonian Institution on its feet. The method, if that is the word, of how the crew was assembled was typical Eaton — and, as well, probably quite typical Eights.²³

G.W. Clinton tells it well. "Some time in April, 1826, Dr. James Eights informed me that Dr. Eaton, with some of his scholars, intended to make a tour from Troy to Niagara for the purpose of collecting specimens in natural history, and that he was empowered to give invitations to whom he pleased — and gave me to understand that if I chose I might accompany them." It can hardly be said that James Eights lacked willingness to assume power!²⁴

"I likewise understood from him that Professors Cleaveland, Dewey and Silliman might be expected." Clinton was impressed — to his credit — by the opportunity "of obtaining a practical knowledge of the natural sciences." Naturally, he could not ignore the opportunity it would provide "thus to be brought in contact with men so celebrated for their attainments." From Clinton's delightful journal of the tour, there can be no doubt the first matter was accomplished splendidly. The second matter never came to fruition and need not be considered a heartbreaker.

"Thus the party was reduced to Dr. Eights and myself from Albany, and Dr. Eaton and 16 or 18 of his students." There was a probability, however, of "Mr. Joseph Henry of Albany" (then recently appointed professor at Albany Academy) joining the expedition, and also the possibility of Eaton's colleague at the Rensselaer School "Dr. [L.C.] Beck's overtaking us." Asa Fitch, despite his later accomplishments, could hardly have counted in Clinton's eyes, since he was simply asked at the last minute, as a prospective student at the school, if he would like to go on the summer tour. The boat was none other than the *LaFayette* (or, more formally, the *Marquis De Lafayette*), which Eaton described as a freight boat with a portable kitchen — and Asa Fitch poetically likened to a "Venetian gondola, just like a coffin clapped in a canoe." Samuel Rezneck notes that there were on it "twenty odd men...crowded into the single cabin, while the stove was on the forward deck, subject to drenching in heavy rains. The sleeping mattresses were kept in cupboards and brought out at night" — so that, as Fitch recorded, the bodies were arranged in two rows, like "graves in a burying ground."²⁵

Clinton's early perspective on the boat may have been unrealistic. He accounted it "very handsome and convenient, having (judging from appearances) been built for the accommodation of passengers; it...has uncommonly large decks behind and before, and the cabin was roomy. On this day [29 April 1826] I was informed that Mr. Cassidy had volunteered a barrel of beef and Mr. Fidler a barrel of beer towards the expedition."

"Dr. Eights told me that the expense of the jaunt would not exceed \$20." However, his father had given him \$30, along with permission to draw additional funds if needed. After journeying from Albany to Troy, Clinton began the tour by a stop at Titus's tavern, "where we had a long conversation on chemical subjects but elicited no before unknown truths."

From Asa Fitch's journal, we learn that departure was not a timely affair. "The stove, cooking utensials, crockery &c was very tardy in being brought on board this morning, so that we did not get through the sloop lock until 11 o'clock. We were detained until about 1 in Troy...in taking the chemical apparatus of Hezekiah Hulbert Eaton & Timothy Dwight Eaton, & mr [Stilman E.] Arms on board. These boys & this young man are to stay & lecture at different villages on our rout....All the distance from Troy to the Cahoes I came on foot, the boat was so slow whilst passing through the locks. I arrived at the falls...full two hours before the boat came up." Indeed, he and Eights continued to out-distance the boat for some time in its westward progress. Fitch's journal included a complete list of members of the "expedition," including "Henry" — not further identified — and "Dr. Jas Eights." The group totalled 25, including captain, pilot, and cook.²⁶

Clinton, too, walked as far as the Cohoes Falls. He lost no time in immersing himself in local natural history, plants especially in their ebullience of spring getting his full attention. In the evening, they had a *speech* (Clinton's emphasis) on the subject of governance of the expedition — the essence of it being that it was better "on such an expedition to be governed by a fool than to have no government." Clinton thought the laws were wise and "I shall set



Figure 2.3. View of the Aqueduct Bridge at Little Falls. From a drawing by James Eights, the original of which is in the collection of the Albany Institute of History and Art. A vignette in the geological chart for Amos Eaton's "A geological and agricultural survey of the district adjoining the Erie Canal" (1824).

them down as soon as Mr. E. [Eaton] furnishes me with the means" [that is, a copy of them, as promised]. At this meeting, apparently, Mr. Eights "was appointed purveyor," whatever that term may mean.²⁷

Fitch, at least, was somewhat disturbed by sleeping arrangements that first night. There simply was not room enough for beds in the cabin and "I had an idea of going to a tavern near by, & beging a small spot on the bar room floor to lay. But afterwards I joined, with two or three more, in erecting a kind of tent on the after deck, in which 4 of us were accomodated, in a manner, not the most uncomfortable. I had a cushion under me, & my cloak over me, & believe I did not awake during the night."

On 4 May, they halted for the night nine miles above Schenectady. "During the day Mr. Eaton remarked that he could prove that before the deluge America contained fewer animals than Europe. This opinion he supported by the fact that a far less variety of organic remains

have been found in our alluvia." Science — as well as life — was simple in those days!²⁸

By 5 May, Clinton had a copy of the laws. Among other things, we learn that Professors Eaton and Beck (actually Beck was never present) were equals, with "the same authority over every individual of the party, whether students or not." Assistants were to be appointed daily, with powers subservient only to professors present. The business of the captain was to manage the boat; otherwise, he was in the employ of the professor or professors. "No member of the party shall whistle, sing, or make any loud noises or be guilty of any ungentlemanly or uncivil conduct."²⁹

We hear more of the purveyor, who was to be "elected by a majority of the party." He could not resign peremptorily. "He shall perform the common duties of steward, but no labour shall be required of him."

"Every member of the party shall collect and label a complete set of the geological speci-

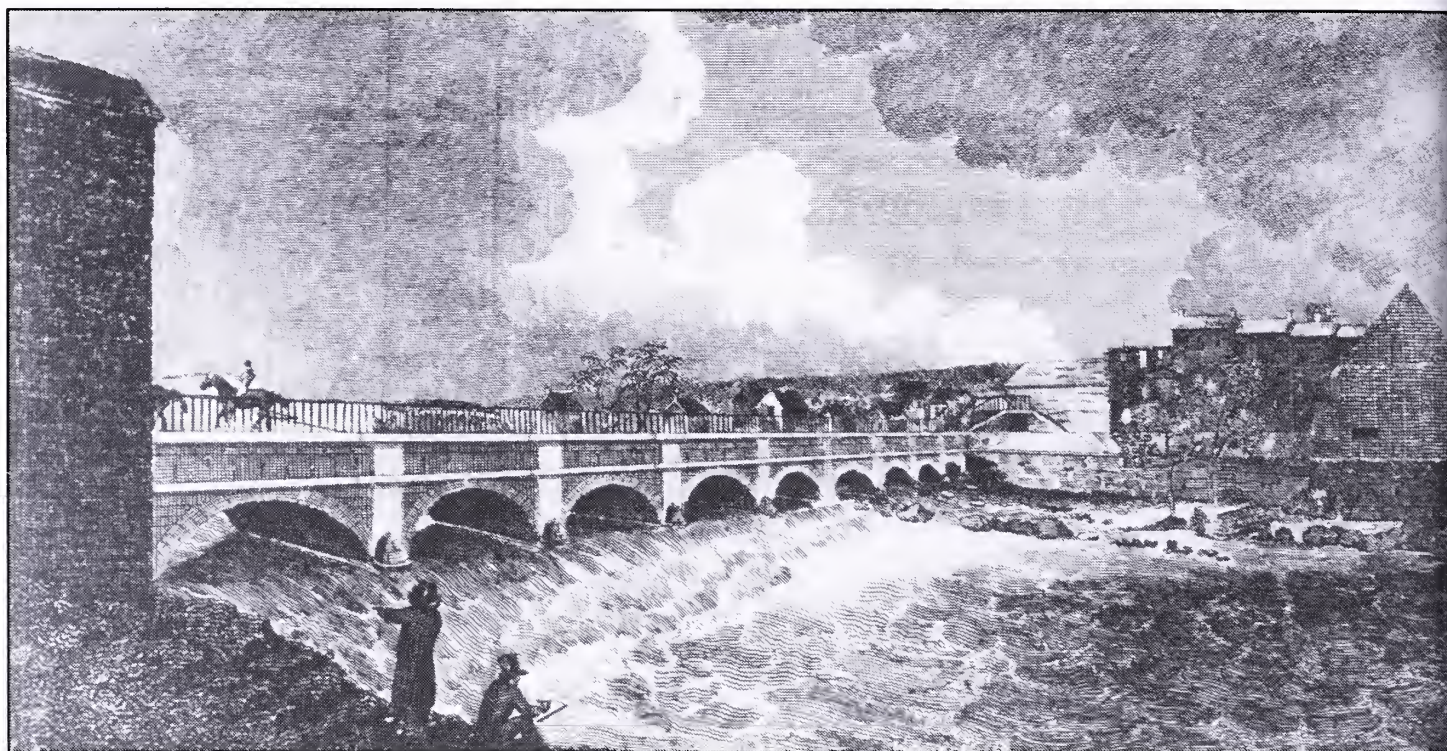


Figure 2.4. View of the Aqueduct Bridge at Rochester. From a drawing by James Eights, the original of which is in the Albany Institute of History and Art. A vignette in a folding in the geological chart for Amos Eaton's "A geological and agricultural survey of the district adjoining the Erie Canal" (1824).

mens of the canal line...and shall keep a complete journal of every important occurrence ..." — but maybe our James considered that "labour"?

"Any member of the party may be expelled and compelled to leave the boat...by a professor, with the consent of half the members of the party."

For the rest, Clinton's interesting journal, except for a few diversions, is here reduced to references to the role of James Eights on the tour.

At Utica, the party created a stir. The Albany *Argus* reported (from the Utica *Intelligencer*) 23 May: "Canal Arrival. — Professor Eaton, accompanied by about twenty young gentlemen from the Rensselaer school arrived here on Sunday, on a scientific tour along the route of the canal in the boat Marquis Lafayette. The party started from Troy about a week since, furnished with the necessary apparatus to enable them to make experiments on board their boat; and we understand intend to pro-

ceed to Lake Erie. The cabin of the boat presented a spectacle which would have delighted a professed amateur. A lecture table with its usual accompaniments of retorts, galley-pots, furnaces, blowpipes, &c.; vials containing snakes, lizards and queer worms; spitted spiders, hornbugs, flies, mosquitoes and other interesting insects together with a large variety of earths, stones, flowers, &c. and the cooking utensils of the party arranged with particular regard to disorder, displayed together a most interesting group. We saw 'Noah's Ark' last year, but this beats it all hollow."

"In the evening [15 May] Professor Eaton was seized with a fainting fit....He was delirious for nearly 1 hour." As soon as the operation of repeated doses of zinc and ipecacuanha had ceased (as Clinton put it), his reason returned and he slept soundly.³⁰

Wednesday, 17 May: at Holley, Clinton and Eights found *Mytilus* (mussel) fossils "in great perfection" in one stratum. The next day, they found similar fossils that he and Eights thought

to approach pinnite mussels rather than *Mytilus* — probably an undercurrent of mutual disagreement with Eaton. We do not know what Eights thought of Niagara Falls but Clinton found that the sight did not leave a lasting impression.³¹

There are hints of disagreements over definitions, probably the usual subversiveness of students, in which one can readily imagine Eights joining. However, even Eights was not exempt from questioning: 29 May, near Rochester, they found minerals that were coated with a material that “Dr. Eights supposes... *calamine*. Is not this incorrect?”³²

At Rochester, on the return, they were joined by Constantine Samuel Rafinesque, “formerly professor of natural history in the University of Transylvania, Kentucky...a truly scientific man, but rather flighty,” as Clinton put it. As might be expected, when shown the skin of a fish shot in Buffalo Creek, Rafinesque opined that its previous notice was inadequate: It constituted a new genus. On the 31st, between Newark and Clyde, they were treated to further examples of Rafinesque’s restless search for new forms. Clinton picked up two salamanders, one being the “*S. erithronota* [Clinton’s spelling] of Green; the other...named *S. fuscata* by Mr. Rafinesque, who claims the honor of first describing it.” Clinton dryly remarked: “We have met with both of them in great abundance in every place that we have examined.”³³

Joseph Henry’s account of Rafinesque’s joining the party describes him as “a short man stoutly formed and very plainly dressed. He appears to be about 40 years old and speaks the english very purely but with a strong French accent. His head is somewhat baled and he combs his hair directly across,...he is very industrious but his usefulness is said to be much impaired by his proness to make new genera & species.”³⁴

The arrival of Rafinesque is told best by Fitch: “As they were making their beds preparatory to starting, a stranger inquired for Professor Eaton. He proved to be the famous Professor Rafinesque...He had heard about the expedition at Niagara and had finally caught up with it.” Professor Eaton invited him to join

them for the remainder of the trip to Troy — a famous hitchhiker, indeed!³⁵

And, 1 June at Jordan, east of Montezuma, Eights did not come off well, for Clinton noted: “we...examined the stone of which the lock is made. In going up...I was told by Dr. Eights that it was a coarse-grained limestone, he having dissolved it entirely. Seeing him so confident and not having an acid by me, I was fool enough to take it upon trust, maugre the evidence of my senses. It is nothing more or less than a sandstone (approaching very near the millstone grit), not even in the least effervescing with muriatic acid.”³⁶

In one way or another, the touring party dwindled. At Rome, on 4 June, Joseph Henry left the group and took the stage for Albany; Clinton noted that “our party, besides the hands, now consists of Professors Eaton and Rafinesque, Dr. Eights, myself” and students Cady, Fitch, McManus, Weston, Pelton, Hale, Hanks, and Danker. Clinton and Eights seem frequently to have geologized together. The group reached Troy at 4:30 P.M., Saturday, 10 June. Whether Clinton was accompanied by Eights on the return to Albany the next day is not specified: in any case, there were inordinate delays and the trip took five and a half hours.³⁷

Of this grand tour, we have nothing directly from James Eights. He did not give up any of his friendships, however, and also benefitted from the chance meeting with Rafinesque, who was his guest on a later visit. As we shall soon see, his activities among Albany naturalists intensified.

Eights and Clinton were afield shortly: On 6 July, they visited “Helderbergh Mountain” and in a joint letter reported to Eaton what they thought worthy to compare with observations made along the Canal, with a competently drawn geological section of findings of their three-day examination of country from the Delaware Turnpike to “Whortleberry Hill, above Salem village on the New Scotland Road, one of the highest of the Helderberghs,” a distance in excess of three miles. “It is our intention to examine farther north and then trace these hills to the Catskill. We will make known to you as soon as possible the result of our

investigations." Eaton soon came to put great value upon Clinton's help. It is not clear here who initiated this exploration. It may well have been Clinton's doing, by then alert to the wishes of Eaton, whom he had impressed. In any case, it kept Eaton's eye trained on Eights.³⁸

NOTES

1. See Chapter 1, account of Jonathan Eights, especially notes 14, 19. I do not account Jonathan's memory in 1847 entirely dependable. Town of Greenfield census schedules were checked for me by L.E. Calvin, Saratoga County History Department. See C. Miller, "The scientific career of James Eights," p. 10.

2. Albany Academy (1913), *Historical Survey*; (1914) *The Celebration of the Centennial...1913*; Academy records do not mention Eights.

3. Virtually all commentators on Eights refer to him as a qualified doctor who never practiced. Nobody documents the case. For his own statement, see JE to Amos Binney, 9 Aug 1834. I am grateful to W.G. Balla for notice of JE's service in the state militia's Third Brigade Horse Artillery in Albany. In Ira W. Scott's Albany Directory for 1831-1832, p. 190, the Third Brigade Horse Artillery was under Brigadier General John Tayler Cooper; "Asst. Hospital Surgeon, Dr. James Eights." There was no "Hospital Surgeon" in this unit; in some units, the position was unfilled. Thus, it appears the category of Assistant Hospital Surgeon and Hospital Surgeon were ranks, not functions. In Child's Albany Directory for the years 1832-1833, p. lii, JE is referred to as "James Eights, Hospital Surgeon" — no title of "Doctor" being included. In Child's Albany Directory, and City Register for the years 1833-1834, p. lii, matters are as in 1832-1833. In the same, 1834-1835, we have "Maj. James Eights, Hospital Surgeon," the only allusion to his having a military (or paramilitary) rank that I have ever found. In the same, 1835-1836, p. 43, the entry is the same as previous year. It is of interest that on p. 42 of the last, the list of Albany City physicians included Jonathan Eights, Edwin James, and John James, among others, but there is no mention whatsoever of James Eights. General John Tayler Cooper turns up later as owner of originals of some of JE's Albany scenes — the mysterious title of "General" obviously coming from his association with the state militia, not the U.S. Army. Further as to JE's practice, he does not appear in S.D. Willard's full and comprehensive *Annals of the Medical Society of the County of Albany, 1808-1851*; nor is he mentioned in Amasa J. Parker's carefully compiled record, in "Chronological list of the Medical Society of the County of Albany from its organization [28 Jul 1806], with the year of admission and place of graduation," in *Landmarks of Albany County*, pp. 185-ff.

4. Histories of the Erie Canal abound. A good popular article well illustrated with contemporary views and portraits (including Eights's three vignettes — not attributed to him, however) is by Donald Tuttle and others, "The Erie Canal...The wedding of the waters," 1977.

5. Anon., "Unparalleled munificence," 10 Sep 1822; see D. Tuttle, 1977, cited in Note 4; there are many accounts of Amos Eaton (1776-1842), few particularly com-

plete; manuscript are abundant; see D.W. Fisher, "Amos Eaton — passionate peddler of science"; a full account of the Canal survey and a generous amount of biographical matter on Eaton may be found in Ethel M. McAllister (1941), *Amos Eaton Scientist and Educator*. The survey was not Eaton's first tapping of the munificence of Stephen Van Rensselaer (1764-1839). The latter had recently funded Eaton's research for *A Geological and Agricultural Survey of Rensselaer County...to Which Is Annexed a Geological Profile* (Albany, 1822), by Eaton, and *A Geological Survey of the County of Albany, Taken under the Direction of the Agricultural Society of the County* (Albany, 1824), by Eaton and Theodric Romeyn Beck; see also J.W. Wells, *Early Investigations of the Devonian System* (1963), pp. 35, 37.

6. T.R. Beck (1791-1855) to Eaton, 10 Sep 1822; Beck Papers, the New York Public Library; a bookseller has noted on the outside of this letter, "T.R. Beck, author of a celebrated work on medical jurisprudence." For biography of T.R. Beck, see: F.H. Hamilton, "Theodric Romeyn Beck," 1861. Eaton was well pleased with the two young men Beck nominated (and Van Rensselaer hired); in a letter to Van Rensselaer, 22 Jan 1824, in his *Geological and Agricultural Survey*, of the Canal, he reported: "The young gentlemen, Messrs. M.H. Webster and J. Eights, whom you appointed as assistants, discharged their respective duties with ability and the strictest fidelity. Mr. Webster's discriminating talent as a naturalist, and Mr. Eights' taste for drawing, seemed to be indispensable in aid of your purpose" (p. 9). The spelling "Theodric" was insisted upon by his biographer and niece.

7. Anon., 10 Sep 1822.

8. McAllister, *Eaton*, pp. 300-301; I quote letters directly (as reproduced by McAllister, rather than as if quoted indirectly); letters of Van Rensselaer to Eaton, 30 Aug 1822.

9. See Note 8; also J.W. Wells, *Early Investigations*, pp. 41-ff.

10. McAllister, *Eaton*, p. 301. As to Silliman (1779-1864), for "Sober Ben," see Jeannette E. Graustein, *Thomas Nuttall*, p. 170; for a full-length account of Silliman, see Chandos Michael Brown, *Benjamin Silliman*, 1989.

11. McAllister, *Eaton*, pp. 301-303. As for certain blank spaces in the resulting map, Eaton stoutly maintained to Van Rensselaer, "I wish not to acknowledge that I am incompetent to decide in these cases; but want of time and the severe rains prevented my taking so wide a range as these localities required" (p. 304). That Eaton did not hide his talents under a bushel is noted wryly by J.W. Wells, *Early Investigations*, p. 35.

12. McAllister, *Eaton*, p. 304.

13. McAllister, *Eaton*, p. 304.

14. McAllister, *Eaton*, pp. 304, 305; J.W. Wells, *Early Investigations*, p. 41.

15. Eights to Eaton, 22 Jan 1823, Gratz Collection, Historical Society of Pennsylvania.

16. If the book was by John James, it was *Sketches of Travels in Sicily, Italy, and France* (Packard and Van Benthuysen, Albany, 1820), by John James, M.D. (1789-1859). This obscure man was quite active in natural history matters in Albany from about 1820 to 1840 (see Albany Institute "Minutes, 1824-1857"); the only account of him I have found is a short reference in T. Bolton and I.F. Cortelyou, *Ezra Ames of Albany*, p. 240. Dr. Edwin James (1797-1861) was a resident of Albany and active in natural history and other affairs from about 1817 to 1820 or so and again in the

middle of the next decade). He appears to have been born in 1797, although Albany doctor and medical historian S.D. Willard wrote that he was born in 1798, perhaps a typographical error (Willard, biographical note on James in *Al Proc.*, published in *Al Transactions*, 6: 282-283). For an authoritative general account, see: Susan D. McKelvey, *Botanical Exploration of the Trans-Mississippi West*, pp. 246-247.

17. Eaton, *A Geological and Agricultural Survey of the District Adjoining the Erie Canal* (1824); "Geological nomenclature for North America" 1828; published as a separate booklet, 1828); William Leete Stone, "Narrative of the festivities observed ...," pp. 289-408, in Cadwallader David Colden, *Memoir, Prepared at the Request of a Committee of the Common Council ...*, 1825). The original pencil, ink and wash drawings of Eights's three vignettes were given by him to the Albany in March 1836 (see MS "Collections of SPUA and ALNH, 1824-1838" in archives of the Institute), where the Little Falls and Rochester pictures are catalogued as U1976.4.1 and 2; the vignette of the Canal Entrance has disappeared. On Eaton's handwriting, see McAllister, *Eaton*, p. 313. Of the four vignettes in the folding chart/geological section, three were by JE; one ("View of the village of Black Rock from the Canada Shore in 1825") — note engraved date, despite the date of publication on title page of Eaton's report — was by T.W. Wentworth and was "procured and presented by Gen. P.B. Porter," according to Eaton; the geological section was presumably drawn by JE; the work is a copperplate engraving printed by Rawdon, Clark & Co., Albany. Note that orientation of the section is counterintuitive to today's conventions: You have to imagine you are looking at the Canal from the north side, facing southward; thus, the Atlantic Ocean end of the section is nearest to the printed title page in the long, folded chart. The chart, slightly revised in 1828, had little relevance for Eaton's two papers on geological nomenclature that was found in that volume of the *American Journal of Science*, and, indeed, no notice was made of the connection.

18. McAllister, *Eaton*, p. 318.

19. *Albany Argus*, 10 Dec 1824.

20. McAllister, *Eaton*, p. 400. The Eaton letter will be cited in full in the account of Eights's Antarctic explorations.

21. Anon., advertisement for "The La Fayette," etc. 14 May 1825.

22. There is little on this trip in McAllister's *Eaton* and Eaton's record remains largely in the archives; *Albany Argus*, Anon., 25 Apr 1826.

23. George William Clinton (1807-1885), "Journal of a tour from Albany to Lake Erie by the Erie Canal in 1826," 1910); Asa Fitch (1809-1878), extensive papers in the Sterling Library, Yale University; Joseph Henry, *Papers*, 1: 136-154, 1972; see p. 74, note 13 for biographical note on Clinton. The Henry *Papers* reproduce the valuable initial portion of Fitch's journal, pp. 133-136; see also Samuel Rezneck, "Joseph Henry learns geology on the Erie Canal in 1826," "A traveling school of science on the Erie Canal in 1826," "Amos Eaton: a pioneer teacher of science in early America."

24. Clinton, "Journal," p. 277, 280.

25. Clinton, "Journal," p. 278; Rezneck, "A traveling school," pp. 258-259.

26. Clinton, "Journal," pp. 279-280; Fitch, in Henry, *Papers*, 1: 133-136.

27. Clinton, "Journal," pp. 280-281; Rezneck, "A traveling school," pp. 259-260.

28. Fitch, in Henry, *Papers*, 1: 134-136; Clinton, "Journal," p. 282.

29. Clinton, "Journal," pp. 283-284.

30. Clinton, "Journal," p. 288; *Albany Argus*, 13 May 1826; for other notices of the Canal Tour in the *Argus*, see a Buffalo notice, 29 May, and one from Syracuse, on the return, after Rafinesque had joined the boat, 13 June.

31. Clinton, "Journal," pp. 290, 291, 292; Henry, *Papers*, 1: 149, thought this viewing of the falls more impressive than his own the previous year.

32. Clinton, "Journal," p. 298.

33. Clinton, "Journal," pp. 298-299, 300. Clearly, Eaton's group was well aware of what had even then become the official view of Constantine Samuel Rafinesque (1783-1840).

34. Henry, *Papers*, 1: 152-153.

35. Fitch, in S. Rezneck, "A traveling school," pp. 266-267.

36. Clinton, "Journal," p. 300.

37. Henry, *Papers*, 1: 153; Clinton, "Journal," pp. 303, 305.

38. Letter to Eaton signed by Clinton and Eights, 6 Jul 1826, New York State Library; I have used a transcription by Char Miller. To JE goes credit for introducing Clinton to Eaton (Clinton's "Journal," p. 278).

THE YOUNG NATURALIST: FROM ALBANY TO THE CITY OF NEW YORK

SCIENCE IN ALBANY

Under pretense of discovering useful knowledge, a broad interest in science was carefully cultivated by many people in the decades of James Eights's youth. Except that the party of Jefferson had officially degenerated into a following of yahoos who would deny it, many confirmed Jacksonians also carefully promoted the broadest sort of interest in scientific matters. An interest in natural history and learning in general was a popular craze. While the depth of his learning made Thomas Jefferson something of an anomaly, the political and social world of New York seethed with a conviction that one benefitted from learning. We have heard of DeWitt Clinton and Stephen Van Rensselaer. At more modest levels, whatever their political persuasion, as shown by people James Eights met every day of his life, from his father outwards, natural history was the rage. It was no longer science for the sake of useful knowledge.

James Eights, of course, entered on the hustings at a time when a naturalist expected to be interested in essentially everything and might even expect to provide useful answers in several of his fields of interest. In many ways, James remained the universal genius — while the world in general sharpened boundaries of fields of interest and elevated barriers between them. That darling science, botany, first deepened into a recondite philosophy of taxonomic principles and soon splintered into professionally guarded enclaves of ever greater specialism.

In 1791, intellectual leaders in New York City (then capital of the state) founded The



Figure 3.1. James Eights perhaps about 1825. Albany Institute of History and Art, Acc. No. X1940.832.1 (in red, X1940.826.1). Gift of J.M. Clarke 1915. Clarke acquired it from Ebenezer Emmons, Jr. Artist unknown. Sometimes attributed to Emmons but without any authority. Water color on paper, 6 1/2 x 6 3/4 inches.

Society Instituted in the State of New York for the Promotion of Agriculture, Arts and Manufactures (incorporated in 1793). In 1798, its headquarters were transferred to Albany. When its charter expired in 1804, it was reorganized under the title of Society for the Promotion of Useful Arts (SPUA). Its cabinet (museum) of specimens from all parts of the state was housed in a room of the new capitol building. As such, it was for many years a focus of interest in science, much of it only marginally useful. Among its active members were such thoroughly good naturalists as T.R. Beck and Jacob Green. It would be natural for Jonathan Eights to plunge into its heady activities upon his removal to Albany (he became a member in 1812). Its four volumes of *Transactions* published between 1813 and 1817 contained many good, entirely nonutilitarian papers.¹

By 1820, however, the SPUA was moribund and its members decidedly on the older side. Perhaps, too, it was somewhat crippled by its claim to have a major interest in *useful* knowledge (however much that guideline was ignored in practice). In 1823, a sense of rebellion led a coterie of young naturalists to form a rival society, really a kind of specialism, despite our feeling today that natural history is hopelessly generalized. That new organization was called the Albany Lyceum of Natural History. It was formed 1 March and incorporated 23 April 1823. It quickly developed its own museum and library.

Then, in a series of moves in 1824, the Lyceum, whose president, as we shall see, was Stephen Van Rensselaer, joined with remnant members of the SPUA to become Albany Institute (with Van Rensselaer as its president). The Institute had three departments: Physical Sciences (new); Natural History (the Lyceum); and History and General Literature (the SPUA).

The curators of the Natural History department of the Institute at its beginning were Matthew Henry Webster, Richard Varick De Witt, and James Eights.

With this thumbnail account of Albany's scientific organizations as backdrop, let us return briefly to the founding of the Albany Lyceum of Natural History where we have a chance to see,

however dimly, James Eights's young friends in action. It is clear that James was not resting on his laurels as draftsman for Amos Eaton's ambitious exploration of the geology of the Erie Canal. The Earth was his oyster and Eaton's friends were his friends.

Said the *Albany Microscope* snippily: "Should the Legislature, in their wisdom, pass an act incorporating the 'Albany Lyceum of Natural History,' it is said competent professors will be employed to deliver a course of lectures on suitable subjects. Committees will be appointed, in a few days, to procure for the cabinet of that useful institution, a specimen of granite, from the Helderbergh; two *rats* and one *white mice*, from the lobbies of the capitol; and a few of the strange looking animals, that are generally found lurking about the 'carroty polls' of 'lazy indigent young men dedicated to the ministry.' Success attend their efforts." This entry is signed by "W." Where anyone managed to collect granite in the Helderbergs and how come white mice (in the plural!) flourished in the Capitol are minor mysteries. And were head lice so biased that only "carroty polls" of young ministers could be home to them?³

There were undercurrents of distrust of these upstart youngsters intent on overturning society. One dour observer hoped to prevent the rebels from tapping the protection (and, no doubt, resources) of Stephen Van Rensselaer. That ill-wisher, calling himself "Amicus," was enabled by privileges then enjoyed by the correspondents of congressmen, to send his letter under free frank from Albany on 15 February, to the Patroon in "Washington City." It is interesting reading:

"Dr Sir

I send you a paper printed in Albany in which are published the sinister motives of the Albany Lyceum in electing you President — The very expression quoted ['used' is lined out] in that paper has been used by two dozen of our Members* — I suggested at the time the unfareness & meanness of the motive as also the simple policy of electing a person of your age and standing in society ['ever' is lined out] president of our association some ['many' is

lined out] of our members being ['whom are' lined out] under *18 years* of age — Thus it was that that pure motive was suggested — You will see from the paper the pacific & respectable policy & deportment of several of its members at its 4th meeting — Nothing but ['the' lined out] my sincere respect & esteem for you as a gentleman & a benevolent citizen has induced me to send you this paper with these remarks — ['I write' lined out] in order that your eyes may be opened & that you may accept or decline the *honor* conferred on you with a full knowledge of the motives & proceedings of this scientific association —

Yours Respectfully
Amicus

* Indeed it was what they *all* esteemed a *politic* measure because they would get 'money &c.[']'⁴

I have found no news item in the Albany *Argus* for December, January or February that might be the item referred to by "Amicus." Nor is it in *The Plough Boy*, and I do not have access to any other Albany newspapers. From the study of James M. Hobbins, it is clear that the ages of the organizers of the Albany Lyceum were indeed much as "Amicus" puts it, whatever motive one assigns their actions. In any case, Van Rensselaer accepted the *honor* of leading Albany's naturalists, as he continued to do for many years.⁵

As for James Eights, we do not know if he took part in any of this organizational struggle or in the carousing that seems to have accompanied it. His name is not connected with the "Licence for begging for the Lyceum" that was granted by the Mayor for 30 days on 24 February. "Begging" or not, Richard Varick DeWitt, Matthew Henry Webster, Henry J. Linn, and Peter Anderson wished "to circulate a subscription paper among Citizens of this place," for the purpose of raising funds to finish, at their own expense, an unfinished room at Albany Academy which they had been offered for the Lyceum's use.⁶

Expressly modelled on the relatively new Lyceum of Natural History of New York (City),

founded in 1817, the Albany Lyceum faced some of the same obstacles as that upstart institution: and both, as obviously, joyously overpowered the opposition. In New York City, as Kenneth R. Nodyne puts it, "tension between the Lyceum of Natural History and the established intellectual institutions of New York extended to personalities as well as collections." In the feuding, feelings ran high and vindictively motivated actions ran low: and woe to anyone who left his flank unguarded. In New York City, De Witt Clinton was caught in the cross fire of a feud between David Hosack and Samuel Latham Mitchill — when feelings ran high that honors ought to go to professionals and be withheld from dabblers and the "universal gentlemen-scholars" — even though the inclusion of Thomas Jefferson was deemed "a reasonable exception." The young upstarts in Albany, as we have seen, had no such qualms about honoring the nonprofessional, at least as long as he was willing to share his clout and money. Van Rensselaer, in fact, did originally decline to lead the new group but soon changed his mind.⁷

Van Rensselaer's strong point was neither in science nor in devotion to attendance. He appeared at only one of 31 meetings in 1823. But he was there when needed; he donated instruments and gave a mineral collection of immense worth to the museum. Extra cases were soon filled, enthusiasm was high, and membership soared. The overall age of members remained young. Still, as James M. Hobbins observes, the Lyceum's "youthful cultivators had not yet exhibited much learning in natural history." Perhaps it was with a feeling that more could be done that the Lyceum's leadership soon changed course and joined forces with the SPUA to form the Albany Institute.⁸

Since Albany Institute histories are plentiful and amply cover matters, attention now will be focused upon James Eights. Some of the emphasis is indeed justified by the substantiality of his contributions.

While the SPUA merited occasional notice in the *Argus* over the years 1813–1819, there were few reports of activities of the Lyceum and even the Institute, a darling of the *Argus* for

many years, got few notices indeed until 1828. I see no reference to James Eights in affairs of the Institute until 1829. Perhaps this was a matter of editorial policy or maybe it reflects the absence of anyone at the Institute perceptive enough to feed ready-made news to the press.⁹

JAMES EIGHTS AND NATURAL HISTORY AT THE LYCEUM AND INSTITUTE, THROUGH 1828

"An Act to incorporate the Albany Lyceum of Natural History" was passed 23 April 1823 (N.Y. State Laws, Chap. 227). By this action, the State Legislature recognized that "Stephen Van Rensselaer, Theodoric[sic] Romeyn Beck, Simeon De Witt Bloodgood, Lewis C. Beck, Matthew Henry Webster, Frederick Matthews, Richard Varick De Witt and James Eights, and such other persons as now are or may from time to time become members, shall be and hereby are constituted a body corporate and politic...". And: "...be it further enacted, That Stephen Van Rensselaer shall be the president, Theodric Romeyn Beck the first vice-president...Richard Varick De Witt, James Eights, and Matthew Henry Webster, curators, and James Eights, draftsman...."¹⁰

Eights was active in various ways. On 9 June 1823, it was reported for the Lyceum Botanical Committee by J.G. Tracy, L.C. Beck, and R.M. Meigs that Mr. J. Eights (no doubt James) had found *Erythronium albidum* [white troutlily], "a new species described by Mr Nuttall in his Genera of North American Plants. This plant which has not before been observed in the Northern or Middle States was found...on the alluvion of the Hudson about 2 miles north of the city." The new form was then described, no doubt mainly by L.C. Beck, who likened it to specimens of the species he had seen in Illinois, where he had recently briefly resided.¹¹

As to actual membership, James Eights leaves an ambiguous record in Lyceum-Institute archives. While he was a corporate member from 1823, being one of 20 members of a joint committee of the Lyceum and the SPUA, under the chairmanship of Jonathan Eights, and paid his Initiation Fee of \$2 in 1823, I do not find that

James Eights again paid dues until near the end of his life. Oddly, although lapsed members were "Removed" for nonpayment of dues (as well as for various unstated reasons), James was not removed from the roster. He rather tagged along into the Institute in 1824 and was there made a resident member in 1827.¹²

Eights was not long delayed in being put to work as draftsman for the Lyceum. At the meeting of the Lyceum on 2 February 1824, M.H. Webster read a translation of Chapter 2 of Alexandre Brongniart's *Histoire des Crustacés Fossiles* (on the subject of their relationships to other animals). On 1 September 1824, it is recorded that James Eights contributed "Drawings of Trilobites, from the plates & according to the Classification of Brogniart [sic], with a copy of a Cast in the Collection of the Lyceum." It appears that the initial number of drawings may have been seven. The total number in the collection today (long considered Eights originals) is nineteen.¹³

James Eights was among people who met on 5 May 1824 to carry into effect the formation of Albany Institute. Among his duties as one of the curators, he helped catalog libraries and collections of both SPUA and the Lyceum, as of 1 June 1824. On 3 June, James and others signed the lists: There were 277 volumes in the library of the SPUA, 52 volumes in the Lyceum's library. He signed, as a curator, a catalog of SPUA's collections on 12 June 1824: it contained 280 specimens of minerals; all were listed with donors, dates, and so on. The Lyceum collection consisted of 1,014 minerals (one belonged to SPUA). At least 39 of the mineral and rock specimens were from James Eights; in addition, there are separate listings for 6 rocks, 7 examples of "organic remains" (fossils), some pertaining to Beck and Webster, and 14 pieces of "The Arts & Miscellaneous." In addition, the Lyceum collection contained special groups of specimens (gifts of Van Rensselaer from Eaton's surveys of Albany and Rensselaer counties).¹⁴

After this initial catalog, items were entered and credited separately, in an ongoing manuscript "Catalogue of the Property of the Albany Institute; since its formation May 5th 1824"; there the name of James Eights appears many

times. In the remainder of 1824, he contributed 61 specimens of insects on 14 June; in September, several trilobite fossils and the drawings of trilobites alluded to above; there was a lizard and a specimen of "*Salamandra Erythronota*"; in October, trilobites and other petrifications; items of foreign origin in November; a turtle, "*Testudo Emys*," in December.¹⁵

Eights was also swapping specimens with naturalists in other regions. Charles Upham Shepard of Amherst College, on 18 June 1824, enthusiastically referred to geological specimens received from Eights and offered substantial quantities of material in exchange. Eights furnished specimens to America's great pioneer zoologist, Thomas Say, for his writings on terrestrial mollusks.¹⁶

Eights maintained his momentum in 1825. He donated 11 geological specimens in April, along with 13 specimens of freshwater and land shells from New York (all named), a snake, crania of cat and crow; a specimen of *Anguis* (Glass Lizard) from near Albany in July; and 86 insect specimens in October, placed in a case presented by Charles Clinton.¹⁷

It appears that James Eights was not a curator for the Lyceum in 1825 (or later), although he did serve in April 1825 on the committee of five that compiled the report on proceedings of the Institute since May 1824. By then, his vision was obviously widening. On 2 March 1825, "Mr. Webster...mentioned, that...Mr. James Eights had found three shells which were believed to be undescribed. One of these has subsequently been described by Mr. [Daniel Henry] Barnes, as *U. [Unio] alasmodontina*, and by Mr. [Isaac] Lea...as *Symphynota compressa*." Although Lea did not publish this new name until 1829, he had had the Eights specimen in hand for some years. It was listed among the specimens of New York freshwater and land shells accessioned on 27 April 1825, where it was called by the recorder "*Unio Alasmodonteanus*," from the Norman's Kill.¹⁸

It was doubtless this transaction in part that is referred to by R.T. Abbott and M.E. Young, in their *American Malacologists*, when they list Eights as having given Albany shells to Isaac Lea and Daniel Henry Barnes. (Much later he

gave Lea specimens collected in Mexico.)¹⁹

Maybe Eights's standing in the world finally induced him to acknowledge his importance by sitting for his portrait. The portrait, alleged to show him when about 25 years old, is described in a later chapter.²⁰

The year 1826 was slower: a couple of coins (one an "antient" Roman copper; the other from Nova Scotia) in January; two geological specimens from nearby Bethlehem and 117 specimens of insects, number of species not indicated, in May; three pieces of Continental Congress paper money in September. No contributions from Eights are listed during 1827 and 1828; two geological specimens presented in 1829 were not of local origin.²¹

CRASHING INTO NEW YORK CITY: THE LYCEUM OF NATURAL HISTORY AND THE WORLD BEYOND

Due to the poor trail he left, we have only a fragmentary record of this critical era of the life of James Eights. How long and how regularly he lived in the City of New York we do not know. It is highly probable that when there he was a guest of his aunt, Phebe (Mrs James N.) Cobb, 59 Washington Square.²²

It would be expected that Eights would contact fellow naturalists in New York and so he evidently did. He created little more than a ripple at the thriving Lyceum of Natural History of New York (later New York Academy of Sciences), aside from his ultimate departure with the New York Lyceum's blessing as naturalist on the South Seas Exploring Expedition, a subject that will be described in the next chapter.

Aside from various allusions to the exploring expedition, his name comes up in Lyceum records in regard to two instances only. On 29 January 1829, "Dr. [John] Torrey on behalf of Dr. Eights presents a speciman [*sic*] of a singular variety of quartz chryystal [*sic*], Palantine [*sic*], New York." Then, at the February meeting, he was elected a Corresponding Member. His presentation of the singular quartz crystal from Palatine has been accorded article status in a couple of biographies but it is a mere secretarial notice — and both bibliographic references mis-

takenly make "Palestine" its point of origin.²³

Even in retrospect, James Eights made no splash in Lyceum history. He is mentioned in no way in Herman Le Roy Fairchild's history of 1887. In our century, Simon Baatz's history of the Lyceum contains no reference to Eights and Dr. Baatz has confirmed the reality of the lack of archival material related to him.²⁴

One final item is pertinent here and what I have been able to find on it to date is more intriguing than informative. As with good gossip anywhere, however, one must make the best of it. Whether James Eights learned from the experience, I somewhat doubt; but, for me, it has been a liberal education.

Dr. James T. Callow reported, in a letter to the Albany Institute (in reference to a broader matter) in 1985, that James Eights came as a guest to New York's exclusive Sketch Club 24 April 1829. He apparently so annoyed the secretary that the latter quit taking minutes the rest of the meeting! Perhaps nothing dismayed, Callow thinks, Eights appeared in other minutes as "Mr. Ottavo," surely a play on James's surname.²⁵

It took me a while to get a handle on the Sketch Club and its role in the exciting cultural world of Knickerbocker New York. Callow's study of Knickerbocker artistic and literary interactions (*Kindred Spirits*) got me on track, and notes from his in-depth study of the minutes of the Sketch Club have filled in gaps so far as known to him.

It seems that artists of the Sketch Club met at intervals and those present were expected to produce a work of art based upon critical reaction to an assigned literary work. Early minutes (from the era of 1829 to 1833) are singularly full and seem almost like humorous (if whimsical) essays meant for publication. Long and extravagant propositions are pompously announced. Several people are given humorous — and not always complimentary! — names, some of them still to be unscrambled.

At the 20 March 1829 meeting (the literary inspiration being "Lochinvar" by Sir Walter Scott), the name of "Mr. Ottavo" (there has been

no previous reference to him or to his supposed double, Eights, in material available to Prof. Callow): "Another member proposed Mr Ottavo — Moved and seconded to Ballot, carried[.] Ballot accordingly — Not elected." Callow supposes (footnote) "Perhaps a code name for Mr. Eights, whom the secretary would no doubt have voted against. See minutes for April 24, 1829." (This leaves a mystery: There must have been some encounter prior to the meeting of 20 March.)

On 24 April, we find: A meeting at the house of Mr. Bryant, "Mr Aights visitor" (again, probably a play upon James's name). Artists present were to produce works based upon "The Borough," by George Crabbe, wherein they were to picture "the discomfiture of a party of pleasure, upon an island which was overflowed by the tide, their boat having thought proper to travel off without leave or license." After this initial soaring to giddy heights, and a transcription of the poem, the secretary, John Inman, suddenly wrote: "By way of a change the Secretary makes no farther minutes of this evening's proceedings. His time having been occupied with reflections upon the expediency of admitting strangers to the Noctes of the Club." Callow supposes (footnote): "Probably the topographical artist James Eights (1798–1882), a native of Albany." John Inman's willingness to lash out at circumstances was well illustrated on various occasions. Prof. Callow notices, further, that visitors were not common in the early years; but he accounts Inman's reaction as untypical and wonders, as I do, what Eights did to annoy him. Maybe he had had a drink too many; maybe he refused to take part in convivialities; maybe he interfered with artists and their sketches. In any case, there is some mystery here as to how many times Eights appeared as a guest and the date of his first appearance.

With this, one is forced to end the account of James Eights in New York, except for following him in his application through the Lyceum for a position with the proposed South Seas Exploring Expedition, the subject of our next chapter.

NOTES

1. Max Meisel, *Bibliography of American Natural History*, 2: 61-62, 111-112, 417, 432-ff; F.H. Hamilton, "Theodric Romeyn Beck," pp. 783-785; J.M. Hobbins, "Shaping a provincial learned society."
2. Hobbins, "Shaping a provincial learned society"; W.G. Balla, "James Eights and the practical application of knowledge."
3. Anon., the *Albany Microscope*, 1 Mar 1823.
4. "Amicus" (AIHA Archives, Lyceum record group); the author has not been identified.
5. Hobbins, "Shaping a provincial learned society."
6. J. Henry, *Papers*, 1: 61-62.
7. K.R. Nodyne, "The founding of the Lyceum of Natural History"; Hobbins, "Shaping a provincial learned society."
8. See: Hamilton, Hobbins, Meisel, Note 1.
9. Anon., *Argus*, 17 Jun 1828, 30 Jul 1829.
10. Anon., "History of the Institute, with a abstract of its proceedings," 1830.
11. AI Archives, McKinney Library. For L.C. Beck (1798-1853), see L.B. Sebring and L.B. Sebring, Jr., "Life of Lewis C. Beck, M.D.," pp. 4-5. As to "Tracey," the Joseph Henry *Papers*, 1: 68, note 14, gives the name as James G. Tracy; nobody gives dates for him. I know nothing of Meigs.
12. D.J. Pratt, "Manual of the Albany Institute"; Anon., 1830, "History of the Institute"; MS notes on dues and memberships, AI; AI Minutes, 14 Mar 1827.
13. AI Archives, McKinney Library, "The Collections of SPUA and ALNH, 1824-1838," 1 Sep. 1824; the copies of Brongniart's original plates, each executed with great accuracy, were probably done at the instance of T.R. Beck; maybe they were meant for use in exhibits.
14. AI "Collections."
15. AI "Collections," 14 Jun 1824-ff.
16. Charles Upham Shepard (1806-1886); his letter is in McKinney Library, AIHA; for Thomas Say (1787-1834), see H.B. Weiss and G.M. Ziegler, *Thomas Say*, p. 184.
17. AI "Collections," 27 Apr-Nov 1825.
18. Anon., 1830, "History of the Institute," pp. 35-36; Isaac Lea, 1829, "Description of a new genus of the family

Naides," pp. 450-451, pl. XII. The miserable nomenclatural tangle involving this species began to settle with its allocation to the genus *Lasmigona* by Bryant Walker, "Notes on North American Naides. I," pp. 1-2; for an account of the natural history of the species, see David Strayer, "Ecology and zoogeography of the fresh water mollusks of the Hudson River basin," p. 32. Note that the name given by Barnes, to whom Eights gave the specimen, was never published. It is clear that Barnes got the specimen too early for the species to have colonized the Albany area by way of the Erie Canal, as has sometimes been supposed.

19. R.T. Abbott and M.E. Young, *American Malacologists*, p. 96 (on Eights: this material is to be used with caution), 66 (Daniel Henry Barnes [1785-1828]). Barnes died tragically — he impetuously jumped from a runaway stage near Troy (see account by J.H. Redfield, in H.L. Fairchild, *History of the New York Academy of Sciences*, pp. 94-96).

20. AI Acc. No. (1980) X1940.826.1.

21. AI "Collections," Jan through Sep 1826; while the *Albany Argus*, 30 Jul 1829, acknowledged the 1829 gift, as "Osseous breccia, from Germany," it was described more fully in the AI Minutes for 29 Apr 1839 as: "A donation from Mr. Jas. Eights was announced, of a specimen of Osseus Breccia, containing the grinders & bones of an extinct bear, from Germany."

22. C. Miller, "The Eights family," unpubl.

23. Manuscript Minutes, Lyceum of Natural History of New York, 19 Jan 1829 (kindly provided by the N.Y. Academy of Sciences); Anonymous notices of Lyceum activities, *Am. Jour. Sci.*, 16: 354-355, 1829; for mistaken locality, see Meisel, *Bibliography of American Natural History*, 2: 260, and W.T. Calman, "James Eights," p. 181.

24. H.L. Fairchild, *History of the New York Academy of Sciences*; Simon Baatz, 1990, "Knowledge, culture, and science"; Baatz, letter, 11 Mar 1992.

25. I am grateful to W.G. Balla for directing my attention to James T. Callow's letter; Prof. Callow, for his part, has been exceptionally generous, supplying me with both a copy of his *Kindred Spirits* and full documentation of his beautifully computerized notes on minutes of the Sketch Club, which I have used freely.

JAMES EIGHTS IN THE ANTARCTIC: GETTING STARTED, 1828–1829

James Eights was on the move and fate conspired in his favor. The story is not a simple one. Its web of circumstances reached from international rivalry in commerce and national glory to the halls of Congress, from national political vendettas to organized scientists anxious to be in on the action. Excellent general accounts of the history of America in the Antarctic are several, some of them wrongheaded, for one reason or another, some of them not fine-grained enough for one to see the little drama in which Eights found himself. While primary material is uneven, there is a great deal of it, some of it not yet adequately incorporated into scholarly works. Aside from reporting pertinent matters that show the patterns of life at the time, my job here is to focus on the entry of James Eights into the fray.¹

The tragic story of commercial exploitation of seals (for fur) and then sea lions and whales (for oil) has been well told. America, even in the age of sail, was in on the ground floor. By Eights's time, it was a mad scramble for the few remaining undiscovered islands, for even remnant stocks of colony-breeding sea mammals, so complete had the sweep been. The carnage was not over but the short-lived age of easy fortunes was already at its end.²

Fortunately, some element of curiosity about Earth and its creatures, fired by national rivalry for new possessions and the honor of new discoveries, if nothing more, began to manifest itself. The occasional curious recorder of natural history turned up on exploring ships, even

early on, as shown by such unexpected examples as the Dane, Vitus Bering (sailing for Russia), and his brilliant but ill-starred naturalist, Georg Wilhelm Steller. Thanks to various happy coincidences, even as the American Revolution ran its course, England sent a distinguished retinue of naturalists on the remarkable circumnavigations of the globe conducted by Captain James Cook. Thenceforward, exploring ships were often accompanied by a scientific staff. The French, often under the most unlikely circumstances, did likewise. Finally, even the Russians for a time treated the collection of natural history data as a regular part of global exploration.³

In Eights's era, American horizons expanded erratically. At first, expansion occurred, humbly enough, at the expense of the private sector. But people began to scheme for securer, more fair-minded and more generous support from federal funding — with, of course, the navy's blessing and protection. It was Eights's sorry luck to be in just as the old order breathed its last but before viable government support could be expected. But government support at that time, necessarily limited as it would have been, would probably not have welcomed a mere tyro. Considering his chances, as viewed from afar, James was lucky to have been there at just the instant when government backed away and private enterprise stoutly (if brashly and ineffectively) claimed its willingness to support a measure of scientific endeavor — with James Eights on the cutting edge.⁴

The popular craze for natural history information, useful or not, has been noticed. But natural history simply could not be given much support on board a tightly run little ship with limited space, with its motives entirely foreign to the ship's reasons for being at sea. Indeed, matters worsened rapidly in an economy of diminishing resources, when the bottom line had to be profit. One can, sort of, imagine a highly specialized modern physiologist or histologist unobtrusively gathering his body fluids and tissues on a sealing expedition. One cannot, however fancifully, imagine a tiny brig, intent on filling its holds with skins or oil, allowing a full-blown naturalist his freedom to make unimpeded meteorological and astronomical observations, stopping at his command to gather specimens, providing precious space merely for preserving, studying, and protecting those specimens (most of them bulky, even at best). The elaborate, if unbelievably cramped, facilities provided as a matter of course to Eights's near-contemporary, Charles Darwin, on board HM surveying ship *Beagle* cannot be imagined as being available to James Eights on his equally small brig *Annawan*. The expedition ostentatiously flew a banner of science — it was, its sponsor Edmund Fanning claimed grandly, “patronised by the United States Government” — and it had a small retinue of naturalists (or alleged naturalists). But, even as doctor as well as naturalist, Eights must have been a square peg. He was later to report that he worked with “the almost entire absence of any conveniences for collecting & preserving objects of Natural History,” and I suspect that was putting it mildly. Let's see how he got there and who went with him. His accomplishments on the expedition will be the subject of later chapters.⁵

The new era of government support for research and exploration began limpingly with the able but not always tactful John Quincy Adams who was, in his turn, caught up in sweeping national changes. In December 1825, President Adams called for authorization to send properly equipped naval expeditions to explore the coast of the American Northwest. In January 1826, a bill originated in the House of Representatives but nothing came of it. Howev-

er, the seed had been planted and Adams was serious about it.⁶

Adams's Secretary of the Navy, Samuel L. Southard, agreed with Adams's view. So did a popular lecturer, backwoods promoter of science, and (some said) vocal member of the Lunatic Fringe, Jeremiah N. Reynolds.⁷

It may be no accident that James Eights was later to interact with Southard and Reynolds in regard to exploration of the South Seas. Both had visited Albany in this critical era. In June 1826, Reynolds gave a series of lectures, one of them gratuitous, more or less on the subject of John Cleves Symmes's theory of the hollow Earth, but with a bit of precautionary fanfare as to the glory that geographical exploration would add to the nation's achievements (the *Argus* circumspectly noted that perhaps “it will awaken a spirit of inquiry, possibly of adventure, which will be ultimately serviceable to the cause of science”). Reynolds was not, he claimed, lecturing for pecuniary gain but to minister to inquiry; his aim was to ease the way for the departure of a “vessel, now preparing... fitted out for a polar expedition” — “which he proposes to accompany.”

The subject of Symmes's “New Theory,” the proposition “that the earth is *hollow* and *habitable within*, and that the concave is...accessible, both to the north and south,” was secondary to Reynolds's interests. He lectured on it, he said, because it was “comparatively unknown” and “because the investigation can lead to no possible evil, and may elicit facts, which if not a confirmation of the doctrine of concentric spheres or hollow planets, will make contributions to science in another shape.”⁸

At about this time (4 November 1826), President John Quincy Adams recorded in his diary the activity of Reynolds in promoting “the proposition of fitting out a voyage of circumnavigation to the Southern Ocean.” Adams noted with approval that Reynolds had gradually drawn back from his originally forthright support for Symmes's ridiculous notion and was promoting the more rational proposal that testing Symmes's idea would lead to Antarctic exploration. While Reynolds got clamorous popular support, Adams was sure the idea

would gain no favor in Congress: "That day will come, but not yet, nor in my time."⁹

Secretary Southard's visit to Albany occurred in October 1827, its purpose not further reported in the staunchly Jacksonian *Argus*. Whether James Eights may have met Southard is perhaps less likely than that he probably did meet and talk with Reynolds. At the time of Southard's visit, Reynolds was still good copy for the *Argus* (taken from the Buffalo *Emporium*): "Capt.[!] J.N. Reynolds, has announced in a Baltimore paper, that final arrangements have been made for the commencement of the long talked of polar expedition. A contract has been made with an experienced naval architect, for the construction of a suitable vessel, and the expedition is expected to sail in the course of the coming season. But another vessel is wanting to accompany the expedition as a tender, and for the purpose of obtaining such a one, he makes an appeal to the citizens of the United States. He says, 'there are more than one million and a half of square miles, which have never been explored, and a coast of more than three hundred degrees of longitude, in which the Antarctic circle has never been approached.'"¹⁰

In late October 1828, Reynolds again got the attention of the press: a notice of his visit to Washington — with the pointed information that he wishes to distance himself from the Symmes theory. In January 1828, as J. M.[!] Reynolds, he was reported as having presented to the House of Representatives a memorial asking the aid of Congress in the Antarctic expedition.¹¹

By this time, the proposals of John Quincy Adams had begun to gel — even as political storms brewed that ended his presidency.

On 21 May 1828, the House passed a bill proposing that a small public vessel, with appropriate (but cheap!) navy protection, be sent out to examine "coasts, islands, harbors, shoals and reefs" in the Pacific Ocean and South Seas. The action must not (a) "prejudice...the general interest of the Naval service" and (b) it must be done "without further appropriation during the present year." Even though the Senate failed to sanction the measure, Adams and Southard proceeded to promote the expedition.

The outcome, of course, was long evident.¹²

By 19 June 1828 (with the House vote alone in their favor), Adams and Southard were laying strategy. It was brave talk, in the shadow of the forthcoming general election and the Jacksonian tidal wave at its highest level. Southard wanted to send the war sloop *Hornet* on the expedition, a trip that would require two to three years. He wanted men of science on the ship, particularly mentioning Mr. Reynolds and Mr. (Henry Rowe) Schoolcraft. Adams had already been approached by Mr. W. Elliot (possibly the amateur botanist, William Elliot?). Adams thought the proposed leader, Captain Alexander S. Wadsworth, ought to be given full instructions, so that practical plans could be laid. Southard opined that there ought to be a chaplain attached to the expedition, but Adams dourly noted: "The want of an appropriation must necessarily restrict the expense within very narrow bounds." Even so, Southard shortly afterwards approached the Lyceum of Natural History in New York as if money were the last of his worries.¹³

For the moment, let us stay with President Adams. On 25 June 1828, the Southard-Adams air castle was abuilding. It was feared that Captain Wadsworth would decline taking command of the expedition but its fitting out was still discussed, not — Adams hoped — entirely uselessly. On the 27th, Southard proposed that Mr. Reynolds be employed to visit Nantucket and report all preliminary information that could be gained from the navigators there who "have frequented the Southern Ocean in whaling ships." This was agreeable, Reynolds's pay to come from the navy's contingent fund. By 14 July, Commodore Rodgers met with Adams, in Southard's presence, and argued against any attempt to send out the expedition. There were simply no ships suitable for it that were in a fit state of repair and the ones available were too small or too large. Wrote the president: "I have a deep anxiety that this expedition should be undertaken, and as far as possible executed, under the present Administration; and I observed that the next year we might not, as it is in my own mind certain that we shall not have the opportuni-

ty." The expedition must go forward.¹⁴

On 4 August, Adams was still pushing; on 5 December, with thoughts of running for the Senate from New Jersey no doubt looming bigger in his mind than hopes of seeing an exploring expedition on its way, Southard again discussed the matter of a chaplain for "this South Sea expedition." In early January 1829, Reynolds replied at length to Congressman James W. Ripley, as to progress that had been made by Southard's astute promotion of the expedition. On the 6 January 1829, the Senate began its investigation of expenses of the South Sea expedition, which ended with a severe censure of Southard's conduct. Senator Hayne, in February, argued at length that the whole matter was illegal, since the Senate had never concurred with the House in authorizing any such expedition as Adams and Southard had sedulously furthered. On 5 March 1829, it was all over. The Senate defeated the bill, even though the House supported it overwhelmingly. Adams licked his wounds, even as Reynolds assured him that a bill supporting the expedition would be introduced in the next session of Congress — "and even recommended by the President." Adams, for his part, laid the defeat to an opposition that was altogether factious, the chief architects of defeat in the Senate being Senators Robert Y. Hayne (South Carolina) and Littleton W. Tazewell (Virginia) — "both men of some talents, but whose sense of justice, of patriotism, and of truth is swallowed up by the passions of party, combining in both, with overbearing arrogance, rancorous tempers, and, in Tazewell, with a never-dying personal hatred of me." Adams explained: "I once told him at my own table, upon his pertinaciously insisting that Tokay and Rhenish wine were much alike in taste, that I did not believe he had ever drunk a drop of Tokay in his life." Tazewell, for his part, had riled Adams by asserting that "he had never known a Unitarian who did not believe in the sea-serpent!"¹⁵

So much for the South Sea expedition of John Quincy Adams and Samuel L. Southard. Where, before its rather predictable demise, did James Eights enter? As we shall see, the expedition that finally sailed was a private adventure

(with a hint of navy oversight, just in case there was foreign interference with American commerce). How did that come about?

In 1828, recall that eyes were upon government sponsorship of the expedition. The New York Lyceum of Natural History wondered if the collection of specimens could be undertaken by the proposed expedition. The rather free-wheeling Southard replied that the expedition would be "extensively serviceable to commerce and to science," and that any suggestions "as to the objects of attention or the persons to be employed will be most thankfully received." Joseph Delafield, president of the Lyceum, began to explore the matter with Secretary Southard; Delafield wrote a memorandum to Southard, while on a visit to Washington, on 28 June 1828, outlining the decided interest of members of the Lyceum in being a part of the action.¹⁶

Southard wrote to the Lyceum 3 July 1828, requesting a suggestion as to persons who could accompany the navy's voyage to the South Seas. After the 14 July meeting, Delafield wrote: the "Lyceum of Natural History will gladly and at an early day, embrace the opportunity you have kindly afforded them, to communicate with you upon the various subjects in which it is more particularly interested." He wrote further: "Since my return to this City I have ascertained that there is a stronger desire, on the part of our Naturalists, to explore the South polar Seas than I had anticipated; and that you may command the services of some of the most respectable and distinguished of them. [James Ellsworth] DeKay and Mr. I. Cozzens are quite desirous to accompany the Expedition.... The former as a principal, and the latter as an assistant, I have no doubt[,] would effect more in [their? — word bound in] respective departments of science, than any two persons with whom I am acquainted." Southard could expect to hear from them, when they were assured that the appointments were not already provided for.¹⁷

On 1 September 1828, the Lyceum committees reported recommendations on what subjects needed attention (but Lyceum minutes kept no record of what they desired).

New York, 15 Oct. 1828.

Sir

Dr. James Eights of the City of Albany a young gentleman who has for some time devoted himself to the Study of Natural History is desirous of obtaining a situation on board the vessel now fitting out at the Brooklyn Navy Yard for a Voyage of discovery to the Southern Ocean — Should it be in your power to grant his request you would obtain the service of a young gentleman able & willing to be of great assistance to the expedition as a Naturalist.

In the Surveys which have been made of this State by Mr. Eaton under my direction Dr. Eights has accompanied him as his first assistant; and he has by this means been Enabled to add to the acquirement [?] of the study the practical knowledge which is only to be obtained in the fields. In addition to his standing as a Naturalist he has by his conduct and demeanour acquired the highest standing among the young gentlemen of Albany.

For further information as to his standing among scientific men Dr. Eights can safely refer you to Dr.s DeKay, Torrey, Van Rensselaer of New York, Prof. Eaton of Troy, and to Dr. [Beck? — bound in] and the other members of the Institute of Albany —

I have the honor to be
With great respect
Your Obt Servt
V Rensselaer
Hon. S. Southard
Secretary of the Navy.²⁰

Eights himself got off an application three days later:

Albany Oct 18th 1828.

To the Honble Samuel L. Southard

Sir

By the public prints and from conversing with several of my friends in the City of New York I have learned that a vessel is now fitting out under the directions of your department for the purposes of discovery in the Southern Ocean, and being desirous to procure a situation on board such vessel as a Naturalist, I have

One suspects that, when the prospect for funds diminished, so did the enthusiasm of DeKay and Cozzens for exploration of the South Seas. In any case, it appears that nothing more was officially recorded on the subject at the Lyceum until the following year, by which time Reynolds and all others interested in South Sea exploration were marching to a different drum — that of private promotion for the project, a subject to which we shall shortly turn.¹⁸

Meantime, James Eights had already been encouraged to consider himself a viable candidate for naturalist on the Adams-Southard expedition. Just why this was so is not easy to see. He was not a member of the New York Lyceum until February 1829, although he was already active there. Had he some reason to feel that Reynolds — or even Southard — would look favorably upon his candidacy? Can there be some substance to a suggestion, made by a distant cousin of James Eights in this century, that Eights had somehow gained favor with commercial whaling-sealing interests? Alfred LeRoy Becker proposed that the family of James Cobb, to whom James Eights's Aunt Phebe was married, came from Stonington, Connecticut. That area provided Reynolds much of his backing for the proposed explorations. It ultimately provided the modicum of private support (in the form of direct help from the old trading captain Edmund Fanning and in the form of the able navigators, Captains Pendleton and Palmer, who led the vessels involved) that the private endeavor had, as Reynolds strove desperately to rescue the foundered South Sea expedition.

It appears the decisive factor was James E. De Kay, a chief figure at the Lyceum who was, according to William Stanton, actually appointed "principal naturalist" by Southard, in a brave show of faith, in September 1828, with Titian R. Peale and James Eights as his assistants.¹⁹

The family tale seems far-fetched and, in any case, Eights was already promoting his candidacy. He started at the top and, indeed, generated a letter in his support even before he himself got his application in the mail. The support came from Stephen Van Rensselaer, who wrote to Secretary Southard:

taken the liberty of requesting from you Sir the appointment. Being entirely ignorant of the formula required to be employed in applications of this nature I trust that any departure from customary usage will be attributed to its proper source & not permitted to affect the Success of my application.

With regard to my fitness for the Situation, I am happy to have it in my power to refer to Professor Eaton whom I have accompanied in each of the Geological Surveys made by him of the State of New York under the direction of Mr Van Rensselaer. To Dr Beck and the members of the Institute of this City Generally. To Drs Torrey & Van Rensselaer & Messrs. Cooper & Cozzens of the New York Lyceum.

I would also beg leave most respectfully to refer to the accompanying letters which have been given to me to be forwarded —

I have the honor to be with the highest
respect Your Very Obt & Most humble
Servant
James Eights
Samuel L. Southard
Secretary of the U.S. Navy.²¹

From this we learn that James was already spending some time in New York and that he anticipated his securing membership in the Lyceum of Natural History of New York by cultivating its secrets. Whether he was entirely honest in claiming to have been on each of Eaton's geological surveys one may quibble at. Maybe he did not think of the two earlier county surveys as being "state" surveys; the same ambiguity can be noted in Van Rensselaer's letter. Presumably, his letter enclosed those of Beck and Eaton, quoted below.

Theodric Romeyn Beck of Albany Institute wrote:

Albany Oct 18, 1828

I have been acquainted with Mr. James Eights for several years & am personally knowing [?] of his having devoted great attention to various branches of Naturl History. I venture with great sincerity respectfully to recommend him as well qualified for a naturalist in [on?] the projected government expedition.

T. Romeyn Beck[.]²²

For his part, Eaton wrote:

Rensselaer School, Troy, Oct. 18.
1828.

I certify, that Dr James Eights of Albany has been associated with me several years as chief assistant in collecting facts along the Erie Canal, for the geological survey published by the Hon. Stephen Van Rensselaer. He has also been an assistant in giving instruction to the students of this school in Natural History.

I further certify, that he has a good general knowledge of every department of Natural History, and a very accurate knowledge of some branches. I consider him one of the most competent geologists in North America. He is also well qualified to make drawings. of. subjects in Natural History.

From my knowledge of Dr Eights, I feel authorized to recommend him for a member of the Scientific Corps to accompany the projected South Sea Expedition.

Amos Eaton
Senior Professor
in Rensselaer School[.]²³

Whether the candidacy of James Eights was further promoted at this early date is not known. By early in 1829, just as Eights was being made a member of the Lyceum of Natural History of New York, all the above became pretty much a dead letter, with Senator Haynes's scuttling of the Adams-Southard South Sea dream and Jeremiah Reynolds's resounding challenge that if government would not do the job, private enterprise, backed by public demand, would accomplish it. H.H. Bartlett rather simplistically refers to President Jackson as having ordered the "indefinite suspension of plans for the Antarctic Expedition" — "through motives of economy, rather than disapproval." (That Jackson himself within less than ten years would send forth a much costlier expedition requires to be noted; it is also clear that Bartlett was so anxious to smear Reynolds as a member of the Lunatic Fringe, along with John Cleves Symmes and his hollow Earth theory, that he may have been prejudiced from the

start in regard to James Eights, whom he may have judged a partner of Reynolds.)²⁴

On 31 August 1829, Reynolds visited the New York Lyceum of Natural History and “stated verbally his wishes that an abstract of the instructions furnished to the Navy Department should be prepared for the Antarctic Expedition now fitting out at this port.” What that “fitting out” amounted to can be inferred by the following piece that appeared in the Albany *Argus* on 25 September, relayed from New York by way of New Bedford:

“EXPEDITION TO THE SOUTH SEAS. — The New Bedford Mercury of Friday, states that Capt. Palmer and Mr. S.N. [!] Reynolds have been in that place for the past week, preparing one of the finest vessels ever built, for the contemplated expedition to the South Seas. This expedition is to be fitted out by a number of merchants belonging to New-Bedford and New-York. Captain Palmer has already shipped part of his crew, prepared boats of the best construction, and obtained other articles for the voyage. The brig will leave New-Bedford in a few days for New-York, where she will receive on board the remainder of her outfit, previous to her departure for the South Seas. Capt. P. is spoken of as among the most intelligent, enterprising and successful South Sea navigators, and possessing much practical knowledge of those seas. With Mr. Reynolds’ scientific skill and enthusiastic devotion to the cause of discovery, the public have long been acquainted. Of the number of vessels to be employed in the expedition, and the precise time of sailing, the editor of the Mercury is not apprised. *N.Y. Gaz.*” This was cut down somewhat from the original New-Bedford dispatch, which may have been a leak to the press from Edmund Fanning, anxious to show up the failure of government to support a venture “where objects of the highest national importance are to be attained” and “the claim becomes peculiarly strong upon the fostering aid of Government.”²⁵

Private enterprize forged ahead. The *Morning Courier and New York Enquirer* of 25 September 1829 asked for help: “*South Sea Exploring Expedition.* — Any citizen having an inclination

to contribute on loan to this Expedition, Books, Voyages, Charts, (if ever so ancient) Time Keepers, Nautical Instruments, &c. &c. &c. by directing them to the care of Capt. Nat’l B. Palmer, of brig Anawan, at this port or J.N. Reynolds, Esq. 96[?] Wall street — they will be thankfully received, the best possible care taken of them, and returned in good preservation at the end of the voyage (the use, danger of the seas, &c. excepted) with a true report of their correctness, &c. It is contemplated the Expedition will sail in...the ensuing month...The papers in this city, and in Washington, Baltimore, Philadelphia, Providence, Boston and Salem, will do a favor by one or two insertions of the above.” There is a pointing hand at the beginning of the notice: intended to alert readers and showing support of the expedition by the paper.²⁶

Whatever was going on, the name of James Eights had not surfaced, nor had the *Argus* made any fuss over its native son.

That Eights was, in fact, to be on the expedition gradually became clear, although complete details are lacking. Perhaps it was a matter of Reynolds’s name being known to everyone, while that of Eights was known at the national level to no one. Yet, Eights was known in Albany and the silence there is a little strange. It may have been one piece of Eights’s bad luck, like being memorialized in the volume celebrating the completion of the Erie Canal as Mr. “Bight.” The ill luck held right through the century and only in our own times has the press been better informed. For example, beginning in 1902, a series of carefully documented articles by Edward Swift Balch on the history of this phase of Antarctic exploration listed only the ubiquitous Reynolds (as “John” N. Reynolds) and an otherwise unidentified “Watson” as scientists but ignored Eights.²⁷

The archives of the Lyceum of Natural History of New York tell us more or less what happened. It is clear enough that sailing away on a privately financed sealing ship held little charm for the Lyceum’s scientists. At the meeting of 12 October 1829, it was recorded: “Dr. DeKay made a verbal communication to the Society [that is, Lyceum/Academy] upon the subject of the private expedition towards the South Pole

which was upon the eve of sailing. He stated that Dr. Eights a corresponding member of this Society was willing to accompany the Expedition provided he was put upon the footing of an authorized agent of the Lyceum. After a full and free discussion of the subject the following resolutions were passed unanimously —

“Resolved that Dr. James Eights of Albany be appointed Naturalist to the expedition now about to explore the southern Atlantic and Pacific Oceans.

“Resolved that a subscription paper be immediately circulated among the members of this society and the friends of science generally through the city and state.

“Resolved that the Lyceum will use its utmost endeavors to raise a sum of not less than \$500 to be paid upon the return of Dr. Eights.

“Resolved that the Committee to be appointed to confer with Dr. Eights be fully authorised to make such arrangements with him as may be deemed advantageous to the cause of Science and the interest of the Lyceum.”²⁸

On 19 October 1829, “Dr. DeKay from the Committee appointed to confer with Dr. Eights reported the result to be that all collections made during the voyage are to be deposited with the Lyceum and that a selection will subsequently made for the Cabinet.”²⁹

It would be both anachronistic and perhaps unfair to say in regard to the outcome of these arrangements, “Stay tuned!” It appears probable that Eights and Reynolds left little or nothing in the way of specimens with the Lyceum, despite both this stipulation and the promise the Lyceum received from Reynolds 28 June 1830, written at Statenland, “acknowledging the patronage of the Lyceum and promising a joint statement from himself and Dr. Eights on the subject of their discoveries” (reported to the Lyceum by Dr. DeKay 28 June 1830). Just what went wrong is not clear. In Eights’s case, at least, it appears that the Lyceum was, upon his return, unable or unwilling to provide the \$500 promised.³⁰

By the time the Lyceum had DeKay’s final statement, the matter was being aired in the

press. The *Morning Courier and New York Enquirer* of 17 October 1829 had it thus: “*The South Sea Expedition*. — The brig *Anawan*, the flag vessel of this expedition, dropped down to the lower bay yesterday, and will proceed to sea this morning. — Thus, after three years of perseverance and industry, Mr. Reynolds finds himself upon the ocean, in search of the undiscovered islands of the South. In addition to the commercial importance of this expedition, it is highly interesting in a national point of view. Whatever lands may be discovered by Mr. Reynolds and his enterprising associates, will become the property of the United States. The stores of science will be increased by the products of the far distant islands, as yet unknown to civilized man, and curiosity, may, perchance, be gratified with something new.

“We visited the *Anawan* on Thursday. She is a fine vessel, and a very fast sailer. She is furnished with an excellent library, and all the instruments necessary for such an expedition. She has a stout and hardy crew, an experienced captain, and first rate officers. After the commercial objects of the expedition shall have been accomplished, Mr. Reynolds intends to sail round the icy circle, and push through the first opening that he finds. Success to him.

“Mr. R. is accompanied by Doctor Eights, of Albany, a gentleman of talents and scientific accomplishments.” This article was copied verbatim by the *Albany Argus* (27 October) — without the slightest local comment or recognition of James Eights.³¹

The *Morning Courier and New York Enquirer* (20 October) expanded in enlightening ways in an article that followed the previous release. “ANTARCTIC EXPEDITION. — In our paper of Saturday we noticed the departure of the Brig *Annawan* [note lack of uniformity in spelling] from this port, on a three years cruise. She belongs to a private association of gentlemen, among whom we have heard the names of Mr. Rodman, of New-Bedford, and of Mr James Bleecker and Capt. Leslie, of his city. She is fitted out for the combined purpose of Commerce and Discovery, her destination is for the frozen regions of the Antarctic Circle, and her whole equipment is admirably calculated to encounter

the hazards and perils of those seas. The *Annawan* is commanded by Capt. *Palmer*, an experienced navigator whose name is already connected with the discovery of a Continent or large groups of Islands near the Antarctic Circle. Associated with him in this enterprise is Capt. Pendleton, commanding the *Seraph*, a vessel of equal size, and who we understand was selected by the late Secretary of the Navy as Chief Pilot for that grand national voyage of discovery which after an infinite deal of talk, ended in smoke. Captain Pendleton is superior office of the Expedition. The crews of both vessels amounting to 50 in number, all stout healthy young men, the sons of substantial Connecticut farmers, and to many of them, it is their first voyage. Among other peculiarities in her equipment, we were struck with the simple contrivance by which her elegant and substantial whale-boats may be instantaneously converted into sleds for passing over fields of ice.

"The Lyceum for Natural History of this city has also lent its important aid to this public spirited enterprise. Under the auspices of this learned body, *Dr. James Eights*, of Albany, a distinguished scientific gentleman, goes out as naturalist to the expedition. We have thus an assurance that nothing of interest to the cause of science will be lost to the community. *Mr. Reynolds*, an individual well known for the energy and perseverance with which he endeavored to call the attention of Congress to a similar undertaking, accompanies the expedition with commercial views. Much advantage to the enterprise may be expected from his zeal and geographical information, acquired while investigating this subject under the direction of the late Secretary of the Navy. A valuable library of several hundred volumes, with many important and appropriate philosophical instruments, have been generously loaned by several public citizens; and when we add that all the instructions for the voyage, and every arrangement has been directed by Capt. *Edmund Fanning*, the Agent of the South Sea Company, whose life has been spent in those seas; we are only announcing that nothing has been neglected to ensure success to these daring adventures. May the promised '*voyage of Pendle-*

ton and Palmer' yield neither in interest nor value to that of any of their adventurous predecessors whose names are identified with the reputation and glory of their respective countries."³²

On 21 October, we learn from the *New Bedford Mercury*, "The brig *Seraph*, Capt. Pendleton, sailed from Stonington..., to join her consort, the *Annawan*, Capt. *Palmer*, off Block Island, whence they will proceed on their exploring voyage." (The two ships did not so meet.)³³

Eights's later claim that he was both "Surgeon & Naturalist" on board the brig *Annawan* is not further documented. At any rate, the ambitious little party did set sail and its trip southward to the southernmost tip of South America will be the subject of the next chapter.³⁴

NOTES

1. Kenneth J. Bertrand's *Americans in Antarctica 1775-1948* cites not only archival material but also a majority of the general, narrative studies, while giving James Eights his due in a way that early works did not. Bertrand, in "Geographical exploration by the United States" (1967) provided a detailed and well-documented preliminary account. He was generally favorable to the role of Jeremiah N. Reynolds. Vincent Ponko, Jr., *Ships, Seas, and Scientists*, pp. 6-9 (Notes, p. 233), provided a substantial although secondary account of this expedition, crediting Reynolds with being the hub of action in the entire affair. Eights and "a naturalist of Philadelphia, John F. Watson," as well as Reynolds, were "scientists." He considered the expedition "unsuccessful for the most part."

2. Many publications allude to the destruction of the seal and whale stocks. Bertrand's work cites useful sources. A good statistical survey of sealing and whaling expeditions may be found in R.K. Headland, "Chronological list of Antarctic expeditions and related events" (1989). Henry M. Dater's "History of Antarctic exploration and scientific investigation" (*Antarctic Map Folio 19*, 1975), gives general background. See A. Howard Clark, "The Antarctic fur-seal and sea-elephant industry," for a thorough historical account especially from the American view.

3. See H.M. Dater, "History," pp. 1-2. For Vitus Jonassen Bering (1681-1741), see Raymond H. Fisher, *Bering's Voyage* (1971). For Georg Wilhelm Steller (1709-1746), see Leonhard Stejneger, *Georg Wilhelm Steller, the Pioneer of Alaskan Natural History* (1936); archival sources are noted by Margery Rowell, "Early Russian botanical exploration in the North Pacific" (1973). For general voyages, Headland's list will prove useful. See R.O. Cummings, "The organization of the American Antarctic expedition of 1830" (1962), p. 1031. The fullest and best account of this expedition is William Stanton, *The Great*

United States Exploring Expedition, pp. 15-28.

4. President John Quincy Adams's keen interest in governmental support for scientific exploration is evident; the mere fact that the private sector reacted to Adams's failure by sending the *Eights* crew to sea at all proves the existence of considerable direct popular support.

5. *Eights* to B.F. Butler, 2 Aug 1836. For Charles Darwin, see not only his own *Narrative* (1839) but many good modern commentaries, notably Alan Moorehead, *Darwin and the Beagle* (1969). The expedition, Edmund Fanning, in *Voyages Round the World* (1st ed.), t.p., claimed was "Patronised by the United States Government." This sentiment has many times been cited. The nearest Fanning came to documenting it was, p. 489, in a letter apparently mailed to Fanning by Martin Van Buren. Dated "Washington, Jan. 20th, 1830," it was from Wm. Coventry H. Waddell, Agent, U.S. Department of State, to Edmund Fanning: "Sir, — Yours of the 28th ultimo was duly received, and agreeably to the request therein contained, the department has made favorable mention of the commanders of the vessels *Seraph* and *Annawan* (and the expedition generally) to the public functionaries of the United States in Mexico, Chili, and Peru, and has also requested the navy department to afford equal facilities to the expedition, through our naval commanders in the South Atlantic and Pacific Oceans." Considering how little of the expedition remained uncompleted by the time this message could possibly have reached southern South America, one can wonder at the amount of "patronage" actually manifested!

6. See J.Q. Adams, *Memoirs* (1875), 7: 169, etc.; a great deal of background on the Adams initiative (along with considerable bias against J.N. Reynolds) can be gleaned from H.H. Bartlett's "The reports of the Wilkes Expedition," pp. 602-610. K.J. Bertrand covers the subject in detail; see also Daniel C. Haskell, *The United States Exploring Expedition, 1838-1842* (1942), pp. 1-2, and various authorities, Note 7.

7. Adams, *Memoirs*, 7: 168, 8: 37; Bartlett, "The reports," Note 6. The literature (some of it half-baked, some over-baked, some fairly handled) on Jeremiah N. Reynolds (1799-1858) is, considering the obscurity of the man (people, for example, have had a lot of trouble even getting his first name correct), enormous. The fullest and I suspect the fairest account of Reynolds is in William Stanton, *The Great United States Exploring Expedition*, pp. 13-15. Rather than inflate this note into a chapter of its own, I relinquish the field to such authorities as can be inferred from my many references to him, here and through the ensuing decade.

8. For Reynolds in Albany, see Anon., *Argus*, 1, 2, 5, 7 Jan 1826. Jibes at Capt. John Cleves Symmes, Jr. (1780-1829), and his wild notion of a hollow Earth, open at the poles and inhabitable within, are legion. For a sympathetic account of Symmes himself (but flawed with regard to Reynolds and this expedition), see John Weld Peck, "Symmes' theory."

9. Southard in Albany, Anon., *Argus*, 5 Oct 1827; "Capt." Reynolds, Anon., *Argus*, 6 Oct 1827; J.Q. Adams, *Memoirs*, 7: 168.

10. Anon., *Argus*, 27 Oct 1827, 28 Jan 1828.

11. Bartlett, "The reports of the Wilkes expedition," p. 606, note 5. See also J.Q. Adams, *Memoirs*, 8: 37; Bertrand,

Americans in Antarctica, pp. 145-146; J.N. Reynolds, "Letter relative to an Antarctic expedition," 22 Jan 1828 (Poore, p. 197, calls him "Rep." J.N. Reynolds).

12. Bartlett, "The reports of the Wilkes Expedition," pp. 605-606; J.Q. Adams, *Memoirs*, 8: 37; Bertrand, *Americans in Antarctica*, p. 145.

13. J.Q. Adams, *Memoirs*, 8: 37; N.Y. Lyceum, Minutes, 14 Jul 1828. The only "W. Elliot" I can suggest is an obscure man identified by Max Meisel, *Bibliography of American Natural History*, 3: 570.

14. Adams, *Memoirs*, 8: 44, 45, 57-58. One practical result of the Adams-Southard promotion was a report by Reynolds on the "Islands, reefs, and shoals in the Pacific Ocean," a letter to Secretary of the Navy Southard, 24 Sep 1828, which appeared in several congressional reports in support of the later exploring expedition; see, for example, J.N. Reynolds, "Pacific Ocean and South Seas ...," 27 Jan 1835.

15. Adams, *Memoirs*, 8: 75, 79, 95, 106; R.Y. Hayne, *Argus*, 19 Feb 1829.

16. N.Y. Lyceum, Minutes, 14 Jul 1828; Joseph Delafield, President of the Lyceum, to S.L. Southard, 28 Jun 1828.

17. Delafield to Southard, 14 Jul 1828.

18. N.Y. Lyceum, Minutes, 1 Sep 1828; 31 Aug 1829; Bertrand, *Americans in Antarctica*, pp. 146-147; in regard to the role of the Lyceum, see especially William Stanton, cited above, p. 23.

19. For *Eights* as a possible favorite of the Stonington whalers, see Alfred LeRoy Becker to Ledyard Cogswell, Jr., 24 Feb 1945, Albany Institute archives. William Stanton, cited above, p. 21; his documentation is hazy in regard to details of the appointment. De Kay's "appointment" must have been quite an indefinite matter but it would have been useful in bringing *Eights*'s name to the attention of Southard.

20. Stephen Van Rensselaer to S.L. Southard, 15 Oct 1828 (National Archives Record Group 45, Naval Records Collection Office of Naval Research & Library. Miscellaneous Letters Received, 1828).

21. *Eights* to Southard, 18 Oct 1828 (National Archives, as above, Entry 21, Secretary of the Navy, Miscellaneous Letters Received).

22. T.R. Beck to Southard, 18 Oct 1828; (National Archives, as above, Miscellaneous Letters Received, 1828).

23. Amos Eaton to Southard, 18 Oct 1828 (National Archives, as Note 22).

24. Bartlett, "The reports," p. 610; J.N. Reynolds, *Argus*, 10 Jan 1829.

25. N.Y. Lyceum, Minutes, 31 Aug 1829; Anon., *New Bedford Mercury*, 18 Sep 1829; see Anon., *Argus*, 25 Sep 1829; the *Mercury* article was echoed by *Niles' Register* on 3 Oct, with the interesting disclosure that "the expedition is to be under the direction of Mr. Reynolds!"

26. Anon., *Morning Courier and New York Enquirer*, 23 Sep 1829.

27. See works by Edwin Swift Balch, with considerable original research: *Antarctica* (1902): 91-92; "Antarctica addenda," 1904; "Stonington Antarctic explorers," 1909.

28. N.Y. Lyceum, Minutes, 12 Oct 1829; DeKay was clearly no longer anxious for the job!

29. N.Y. Lyceum, Minutes, 19 Oct 1829.

30. See Note 29; also, N.Y. Lyceum, Minutes, 28 Jun 1830.

31. Anon., *Morning Courier and New York Enquirer*, 17 Oct 1829; Anon., *Argus*, 27 Oct 1829; the entire piece, with Eights demoted to "doctor" (lower case), appeared in *Niles' Register*, 23 Oct 1829.

32. Anon., *Morning Courier*, 20 Oct 1829. Benjamin Pendleton was earlier involved — at considerable expense to himself — in preempting and preparing a vessel for the navy's use (with Pendleton to have been a navy lieutenant in command of the expedition). All plans came to naught

and he prayed Congress for compensation; the House agreed (C.P. White, "Petition of Benjamin Pendleton to Committee on Naval Affairs," 30 May 1830) but Senator R.Y. Hayne, "Petition of Benjamin Pendleton," 6 Apr 1830, denied the claim, thus killing it.

33. Anon., *New Bedford Mercury*, 21 Oct 1829. That the brigs *Seraph* and *Annawan* never saw each other in the southward voyage until Staten Island was reached is variously documented; see Pendleton to Fanning in E. Fanning, *Voyages Round the World* (1st ed.), p. 479.

34. JE to Amos Binney, 9 Aug 1834, to be quoted later.

JAMES EIGHTS IN THE ANTARCTIC: THE SOUTHWARD TRIP, 1829



Figure 5.1. Nathaniel Palmer (1799-1877), captain of the brig *Annawan*, on which James Eights sailed to the Antarctic. Courtesy of the American Geographical Society, New York.

Three small ships sailed for the Antarctic in the autumn of 1829. They were the brigs *Seraph* and *Annawan* and the 84-ton schooner *Penguin*. The nominative flagship was the *Seraph*, master, Benjamin Pendleton, William Noyes, first mate; with a crew of 22 men. The *Annawan* was under the command of Nathaniel Brown Palmer and carried the five members of the so-called scientific corps and a crew of 28. However, Pendleton's *Seraph* was little involved in what is of most interest to us. Of vital concern is the *Penguin*, commanded by Nat Palmer's brother, Alexander S. Palmer; Phineas Wilcox first mate; and a crew of 16 men. The *Penguin* was on its own sealing excursion but we are indebted to the fates that brought it into the picture, for it accompanied the *Annawan* closely during the entire Antarctic segment of its cruise. And, since the log of the *Annawan* has been lost and "the corps of scientific gentlemen," including James Eights, left no detailed records, even the sketchiest notion of Eights's Antarctic travels would be impossible to comprehend without recourse to the log of the *Penguin*.¹

Picture the *Annawan*, where our attention must be directed, because the entire scientific corps was associated with it during the Antarctic sojourn. It was built at New Bedford in 1823 by Zachariah Hillman & Sons, master carpenters; Eli Haskell, surveyor. It was about (reports of measurements vary slightly) 158 tons, nearly 79 feet long, 22 feet wide, and 10 feet deep, with one deck, two masts, a square stern, no galleries, and a bust head.²

Benjamin Pendleton was an experienced sealing captain. He was technically field commander of the flotilla but remains little known. Our interest focuses, thus, on the Palmer brothers, both well-known members of a notable family of sailors and merchants.³

As for the scientists, except for James Eights, they were very much deserving of the epithet "so-called scientific corps." Down through the remains of the nineteenth century and well into the twentieth, the only member of the team to be regularly named was Jeremiah N. Reynolds, although people had all manner of trouble getting his forename and initial correct. Thus, we have had John and James (the former the name of choice of the Library of Congress for many years) and various combinations of initials. To this day, nobody has filled out the middle initial. No scientist, he was a man of some ability and, best, a master of muckraking. Bertrand terms him "more properly...historiographer and commercial investigator of the expedition." He was certainly treated by the world at large as much more than that and perhaps he shared that view, too.⁴

Since we know about James Eights, and the two assistants have never been named, the only remaining member of the scientific corps to be accounted for is one Watson. I say this so ambiguously with some reason.

Nowadays, Watson's full name is usually said to be John Frampton Watson. Early on, with some decisive exceptions, if named at all, Watson was usually not provided with a forename. Whether he was related to the contractor John Watson who unsuccessfully petitioned the government in 1831 for redress for losses incurred when he built a vessel in New York (after having "proceeded" there — from where is not stated) for government use in the War of 1812, I do not know. Our Watson's city of origin is not always mentioned. Taking him to be a discovery of Reynolds and noting Reynolds's wide range of travel in promotion of the expedition, Watson could have come from anywhere in the East. In any case, in Mrs. R.B. Harlan's life and lore of Reynolds, she calls him "Dr. Watson, of New York...a man of wealth" and he becomes a prime mover in fitting out a ship.

Hers was a decidedly wild shot.

Perhaps echoing Mrs. Harlan, Robert F. Almy admits that nothing is known of him but, as "Mr. Watson of New York," "it is believed he furnished some of the funds for the expedition." By 1940, in Lawrence Martin's account of early southern explorers from the United States, he had become "Dr. John Frampton Watson of Philadelphia." Thus, doctor again — but this time, from Philadelphia.

However well founded I am not certain, but a John Frampton Watson, who at least "flourished" pretty much in the right era, was turned up for George Cuthbert Groce's *Dictionary of Artists in America*. There, he is characterized as "Lithographer working in Philadelphia from about 1833 until after 1860." He was a daguerreotypist in 1841, "a native Pennsylvanian, born about 1805." Other biographical dictionaries of American artists probably merely copy this entry. No art historian says anything about his Antarctic explorations. Nicholas B. Wainwright's account of him is a little fuller. No date of birth is given; he is an artist-lithographer only, his work not of a very high order. "He was described as a queer chap, very conceited." He "began his career as early as 1832 or 1833 as an artist...for a few years...in partnership with C.A. Watson, but after 1838 he was on his own as a lithographic printer until the end of his career in 1866." A beginning date of 1832 or 1833 for his active status in Philadelphia does nothing to strengthen the case; that he was an artist and lithographer might have interested Reynolds, although, in retrospect, I know of no instance when he made use of Watson's talents in that line. Groce's supposed date of birth sounds good.

Philip I. Mitterling calls him merely John F. Watson, "a Philadelphian." John Stewart adds nothing, simply citing him as John F. Watson, "one of the scientists" on the expedition of 1829–31.⁵

The odd man out in accounts of Watson is D.M. Henderson, who has Reynolds with two companions, "James Eights, a young geologist of Albany, New York, and John Fanning Watson, a cousin of Edmund Fanning"! "The latter [Watson] practiced law in Philadelphia and was

also an amateur naturalist." If he were both a naturalist and a cousin of Edmund Fanning, a prime organizer of the expedition, this would account for his being aware of it. But there are difficulties, aside from the solid evidence that his middle name was Frampton. While it cannot be counted definitive, the only "John Fanning Watson" I come up with is in *Dictionary of American Biography*, and he is an unlikely candidate for various reasons, even if he was a sometime Philadelphian and had ship-owning ancestry in the Connecticut area. First of all, he was born in 1779 (thus, 1828 would be an unlikely year for him to embark on an Antarctic lark). He was never a lawyer and by 1812 or so was firmly ensconced in Germantown where he spent the remainder of his life very actively publishing accounts of early life in Philadelphia and Pennsylvania. (Nor can he somehow be the Philadelphia lithographer, for his works were illustrated by a local artist.)

Finally, an early slip of the pen and an obscure footnote confirm Watson's middle name as "Frampton." In an anonymous newspaper article in 1830, he was referred to as "Mr. Hampton Watson of Philadelphia, amateur." Actually, there can be no doubt his forenames were John Frampton, since Edmund Fanning himself so identified him. (See Edmund Fanning, *Voyages* (2d ed., 1838), p. 174, letter to President Martin Van Buren.) He tells of appearing before President Jackson in December 1831, with Captain Pendleton and "a scientific citizen of first qualifications." In an asterisked footnote, Fanning explained that the men were "Captain Benjamin Pendleton, senior in the command, and John Frampton Watson, Esq. M.D. Professor, and of the scientific corps of the American Exploring Expedition / of brigs Seraph and Annawan, which had been sent to those seas, patronized by the executive government [of the] United States." Thus, his name was John Frampton Watson...and he was not only an M.D. but also a professor!¹⁶

Plans for the *Annawan* and *Seraph* to rendezvous either four leagues south of Montauk Point off eastern Long Island or in the Cape Verde Islands failed to materialize. Pendleton's *Seraph* ran afoul of contrary winds on its exit

from Stonington. Although the *Annawan* waited for the arrival of the *Seraph* at Boavista (or 'Bonavista,' as then usually written; the second is a phonetic variant of the former), it finally left without it. Their third planned place of meeting was Port Hatches, on the north coast of Staten Island, eastern tip of Tierra del Fuego.⁷

The world learned belatedly of the arrival of the *Annawan* at the Cape Verde island of Boavista. The Albany *Argus* of 30 March 1830 carried a truncated version of information made available to New York newspapers by Reynolds: "Mr. Reynolds, who went out on the South Sea Expedition, writes from Bona Vista, one of the Cape de Verde Islands, on the 14th of November [that is, 1829], that the brig Annawan and her crew had arrived there in good condition, and were waiting for her consort the Seraph, to proceed on the voyage. The Seraph left Stonington the same day on which the Annawan sailed from this port [New York]."

The New Bedford *Mercury* carried a much fuller account from Reynolds's report on 2 April 1830, copied from the *Morning Courier*: "SOUTH SEA EXPEDITION. — The editors of the New-York Courier and Enquirer, have received from Mr. J.N. Reynolds the following letter, dated at Bonavista, (one of the Cape de Verd Islands,) 14th November. Mr. Reynolds, it will be recollected, sailed, from New-York early [sic] in October last, in the brig Annawan...and this, we believe, is the first intelligence received from him since his departure. The Annawan it seems, arrived at Bonavista on the 9th November, and was waiting for her consort, the Seraph, which sailed from Stonington (Conn.) on the same day that the Annawan sailed from New-York. The crew were all in good health. It is stated in the Mercantile Advertiser that the Seraph had arrived, and that both vessels were to sail from Bonavista on the 23d November [editorial guesswork]:

'Gentlemen — after having encountered our full share of squalls, head and cross seas, thunder and lightning, while passing the Gulf [Stream], doomed, as it appeared to be, to the eternal conflict of the elements, we arrived in this port on Tuesday morning, 9th inst. making our passage 24 days from the city of New-York.

'On the fifth day out, we fell in with the ship Fabius, (bearing our Minister, his Excellency, Gov. Van Ness, and family, to Spain) having left New-York 24 hours before us. With this testimony in favor of the good qualities of our brig, we were all well pleased, and watched with more than common interest the bearing of the two vessels, as they were driven on with prodigious force by a stiff north-wester.

'Never did "Annawan," King Philip's prime minister and chief warrior, behave himself more nobly in his wars with the Colonies in 1676, than did our brig (which bears his name) on that day.

'What we might lose with the Fabius while on a heavy head sea, we could gain on the wind.

'I have made several excursions over the Island, accompanied by my friend and companion, Dr. Eights, who has collected a number of specimens in Botany, all in perfect bloom and much more valuable than we expected to find in a place so long and well known, and principally noted for its salt, which nature, rather than art or labour, supplies in the greatest abundance.

'On the arrival of our consort, the brig Seraph, Capt. Pendleton, we shall proceed on our voyage. She left Stonington the day we sailed from New-York. The extent and duration of our voyage cannot be determined at this time. Besides, acting in good faith, as we mean to do, towards our stockholders, in the business part of the cruise, two other objects will particularly occupy our attention, which, if we can accomplish in any tolerable degree, I shall feel that my time has been well employed, and that our enterprise has not been in vain, even in a national point of view.

'One will be to collect such facts, within the range of our commercial operations in the Pacific Ocean and South Seas, as will show, that the completion of that expedition, so nearly matured, and so unaccountably laid by at the last session of Congress, would have been beneficial to our commercial interests, as well as have reflected the highest credit on our national character. In the second place, we shall endeavor to make such observations while in the higher Southern latitudes, on the formation and

quantity of ice, cause and velocity of currents in the different miredians [!], as well as on the points, where there will be probably found the least obstruction in reaching a high latitude. In a word, to acquire such practical knowledge of those seas, as may be useful in guiding the operations of a more efficient expedition, contemplated, on the return of the present one to the United States.

'We will do what we can in preserving such objects of Natural History as can be collected in that part of the globe where so few researches have been made in this branch of science: — In Geology, Mineralogy, and, to a certain extent, in Botany, the field before us is ample and unoccupied.... J.N. Reynolds.'"⁸

As indicated, the *Seraph* did not encounter the *Annawan* until they met in Tierra del Fuego.⁹

One is doomed to disappointment if he anticipates finding considerable numbers of Cape Verde plants that Eights collected. R.O. Cummings claimed that "Records in the Albany Institute indicate the beginnings of a careful collection of specimens [presumably of plants] in the Cape Verde Islands." He cited an entry in the Institute "Catalogue of Properties" that indicates nothing of the sort; either he scrambled references or saw something not actually in that "Catalogue" — either is readily possible, when so complex a mass of manuscript material is involved. So far as I can find from examination of specimens in the New York Biological Survey herbarium (where a good many Eights specimens are to be found), Eights's Cape Verde plant specimens are two: *Aerva tomentosa* (Amaranthaceae)(now named *A. persica*); and a specimen long labeled *Lysimachia* that has been kindly identified by Prof. Per Sunding as *Kickxia brunneri* (Scrophulariaceae). This, at any rate, adds the name of James Eights to botanical collectors in this area.¹⁰

As to what the *Annawan* was doing at Boavista, aside possibly from awaiting the arrival of the *Seraph*, the answer is no secret, for the island was a favorite source of high-quality salt, used in curing sealskins. The popularity of "Cap de Verd" sea salt was attested to by Charles Darwin.¹¹

Little has survived to show how James Eights occupied his time on the long sea journey southward. That he had kept notes on natural history and had even made systematic records of the weather, and so on, seems likely. That he retained them or made much direct use of them seems doubtful, however strange this sounds to us today.

As an example of his day-to-day observations, of little direct interest to us, it is so out of context, Albany Institute has a fragment. The article consists of two facing foolscap sheets of data ruled horizontally for the days Tuesday 1 December through Thursday 31 December. The left sheet is entitled "A Table of Thermometrical Observations Made in the South Atlantic Ocean on Board the Exp Brig Annawan Capn N.B. Palmer December, 1829. by James Eights"; the right sheet entries bear the label "Winds."¹²

Actually, the "Table" consists of more than temperature readings. Each line gives day of week and day of month. Columns to the right then make it possible to enter other information for each day, if pertinent (or if available): There are entries most days for "Latitude South by Observation" — exceptions being that there are no entries here for 5, 7, 18, and 29 December: probably days when, for some reason, determinations of latitude were not made. In the column next to the right, labeled "Longitude West by Chronometer," there are actually only two entries, one for 25.38 on the first, one for 32.49.45 on the sixth; neither reading can apply to the Patagonian coast. Where the fault lies here, I cannot tell, but I presume Eights did not have access to such readings. "Temperature" was recorded, with apparent faithfulness, for the air at 6 A.M., 12 noon, and 6 P.M. and for the ocean, until 6 A.M. Friday 25 December. Under a column left at right for "Remarks," there are few entries, one being that his original thermometer was accidentally broken on 20 December; an even more dismal note is entered as a footnote: on the 25th, "Lost our Thermometers," after which no more temperatures were recorded. Other remarks are two entries on "Variation by Amplitude." It may be of interest to note that at 1° 38 min South, on 1 December, air temperatures were 80, 84, and 80 degrees;

that of the ocean was 80. Temperatures taken during the final days he had a thermometer were variable but on the last full day of observation, Thursday, 24 December, at 40° 46 min South, temperatures were 56, 58, 60 degrees; ocean, 54. The final day's record was for latitude only, 44.9, which, if accurate, would place them in the vicinity of Cabo Raso, south of Rawson, Argentina.

The chart of "Winds" consists of comments probably taken from the ship's log, merely a list of directions at 2, 4, 6, 8, 10 A.M.; 12 noon; 2, 4, 6, 8, 10 P.M.; and midnight. Some entries vary to the extent that the wind is said to be merely "Variable" or "Calm" or, once, "Squally."

One would like to think that the *Annawan* stopped at Fernando Noronha, a rocky island off the extreme east coast of Brazil. Benjamin Morrell, Jr., described what Eights might then have seen. The island is about 67 leagues off the coast, in lat. 3° 55' S., long. 32° 29' W, and is about seven miles long. It was formerly a penal colony but had become by this era a stopping place for vessels employed in the whale fishery, for it was possible to secure fresh meat, water; and wood (at the risk of a stove boat). The island gave the appearance of being "very rugged and barren," its highest point a "rocky peak on its north side, called the *Pyramid*." Water was often very scarce, when rivulets dried up: "this is no uncommon occurrence, [but] is neither periodical nor regular." Vegetables were few, in the best of seasons.¹³

To provide this complex chapter with some degree of structure, my account will next describe ship movements in the South Atlantic, so far as known, with some references to ancillary matters. Eights's own published observations and comments, including his oft-cited but never adequately documented landing(s) in Patagonia, having appeared in an unsystematic order over many years' time, will be relegated to an Appendix. There, Eights's later published material will be compared with entries in Charles Darwin's *Beagle* journal, because of his alleged unacknowledged use of Darwin's observations.¹⁴

From Reynolds's letter dated 14 November (quoted above), the arrival of the *Annawan* at

Boavista on 9 November was reported — the *Seraph* had not then arrived there; editorial comments accompanying this letter suggested that the *Annawan* was to leave Boavista on 23 November. It is known from its log that the *Penguin* was in sight of the Cape Verdes on 31 October; it took on salt, water and fresh food from 4 to 6 November. Sailing more or less directly southward, it arrived, at Port Hatches, on the north coast of Staten Island, on 24 December. Unlike the *Penguin*, the *Annawan* landed briefly in Patagonia at the mouth of the Rio Negro, so that it did not arrive at Port Hatches until 5 Jan 1830. It appears even then, the *Seraph* had not yet arrived there. The *Annawan*, in company with the *Penguin*, left for the South Sandwich Islands (the subject of the next chapter) on 13 January (according to Reynolds) or 14 January (according to the log of the *Penguin*).¹⁵

J.N. Reynolds was later to refer to the *Annawan* being held up at Staten Island. The delay gave Reynolds (with help from Eights) a chance to look at the countryside and to record an adventure with a sea lion. Reynolds's impression of the landscape is worth sampling.

"The island of Staten Land, which lies southeast of Terra del Fuego [spellings are per Reynolds, unless I have been misled by fuzzy microfilm], from which it is separated by the Strait le Maire, when seen from a short distance, has a most barren and forbidden appearance; but such is not its real character. — The tops of the mountains, composed of immense masses of granite, produces, it is true, little vegetation; but on their sides, and what may be called the low lands, there is a rich, thick mould, formed by the decomposition of their natural productions, and beautified with the most luxuriant verdure."¹⁶

Compare this with Capt. Ben Morrell, Jr. After correcting the mistaken impression that Cape Horn is the southern extremity of South America, he proceeds to describe Staten Land, which is "separated by the Strait of Le Maire from the island of Tierra del Fuego, as the latter is separated from the continent by the Strait of Magellan. It presents to the eye of the navigator a surface of craggy hills, which rise to a vast

height, especially near the west end of the island. The coast is rocky, and much indented with bays and inlets. The dismal aspect of this country (which has been much exaggerated) is painted in very strong colours by almost every navigator who has visited or passed it." However, avers Morrell, "the scientific gentlemen" who accompanied Captain Cook found a land "supplied with both wood and verdure." They further pointed to its lack of snow cover and its abundance of bays and harbors (to the latter Morrell alludes in detail). While more sterile than Tierra del Fuego, across the strait, "being, in general, one body of craggy sharp-pointed mountains; with the sea surging against it on all sides, with considerable violence," it has its good points. Its harbors are protected and safe; its "shores abound with wood and fresh water, and a few seal of the fur and hair kinds are frequently found on the beach. Scale-fish of various sorts may be caught with hook and line, and sea-fowls shot in several directions. Fresh green celery in its season can be had in any quantities, together with some berries of an agreeable flavour." Captain Morrell deserves credit for insightful observation: Staten Land, in his opinion, "owes all its supposed terrors to its being in a high latitude, and *so far from home!*"¹⁷

In words whose purple tint one can perhaps lay to the indiscriminating taste of the time, and, in general, in better organized prose than James Eights often managed to muster, Reynolds described a raid on a sea lion and his harem in a seacave at the entrance to Port Hatches. While one may question whether this was the first such raid there, here is his story.

"Near the entrance of Port Hatches, is a cavern, long known as the retreat of a few patriarchs of the ocean, to whom its deep recesses had been, until the period of which I am about to speak, a safe protection. The opening of this sea lion's den is about thirty feet in width, its base being on a level with the sea, at low water mark. The whole length of the cave, beneath the base of the precipice, is two hundred and twenty paces, beautifully arched over with stalactites, and in some places changing its course from a direct line, and forming little apertures, which communicate with the main entrance.

"To enter this cavern, explore its secret chambers, and provoke a combat with the ancient holders and proprietors of this wild citadel, was the object of one of our boat excursions. Preparatory to our advance into this

—— 'cavern hoar,

That stands all lonely on the sea-beat shore,'

fires were placed, one after another, with a distance of thirty yards between each two, to answer the double purpose of guiding our progress, and of securing a speedy retreat, should we be too roughly received by the old *phoca*, who, with a number of clap-matches in his suite, had taken up a position in the farthest corner of the den.

"With lighted torches, we now advanced into the abyss, which the ancient Romans would have consecrated to deified nymphs, and the Persians have assigned as the retreat of their god Mithras. — The fires cast a dim, flickering light, which rendered visible the darkness in our rear. Every thing around us seemed to partake of the gloomy silence of the tomb, until the stillness was suddenly broken by the roar of the old lion, more appalling, by far, than that of his fierce namesake of the Moorish plains. Having approached so near that we could see the monster's glaring eye-balls, we discharged our muskets, and continued, alternately retiring to load, and advancing to fire, until our ears were stunned, and our heads bewildered, with the reverberations of the reports, mingled with the roarings of the whole maddened group, now closely pressed, and severely wounded.

"Our lights failing for an instant, we retreated to replenish them. The lashings of the waves at the mouth of the cavern, though distant, echoed and rumbled so loudly through the vaulted passages, that we could not hear each others' voices. As we again moved forward, to discharge our pieces, the old sea lion broke out into a new paroxysm of rage, tearing up the gravel and rocks with his claws and teeth. The white foam, mixed with blood, dropped from his large red tongue; while so hoarse, so loud and deafening, was his howl, that we were obliged to stop our ears with our hands, to prevent being pained by it.

"The scene around us had now indeed become one of inconceivable wildness and horror. Two hundred paces within the mouth of a cave which man had never before entered, the dim flickering light of our torches, and the decaying fires in our rear, together with the suffocating smoke from the frequent firing, rendered it retrograde[!]. Nor did we commence to retreating a moment too soon. Wounded and infuriate, the old lion now began to move toward us, as we gradually returned, step by step, throwing stones and firebrands, to keep him in check, until we had reached so near the mouth of the cavern, that with deliberate aim, capt. Palmer of the *Penguin*, shot him. This was his death wound, although he had previously received no less than ten balls.

"After recruiting our fires with the blubber of our victim, we returned to the charge; and soon succeeded in taking the remaining five females and their pups. The old sea lion (*phoca jubata*) measured ten feet six inches in length, and eight feet round the shoulders; and, as we supposed, would not weigh less than four hundred pounds. The females were from six to seven feet in length, and of a more slender form."¹⁸

The Albany *Argus*, without indicating source, had "the American discovery brigs, Seraph and Annawan, under the command of Capts Pendleton and Palmer," leaving "a port in the vicinity of Cape Horn, the middle of January last, all well," and proceeding "southward for Palmer's Land in the South Pacific." New York's *Morning Courier and Enquirer* had a letter from J.N. Reynolds, dated Staten Land, 13 January 1830; the *Annawan*, "having taken on board a full supply of wood and water, she proceeded southward on 13th, all in good health, and in high expectations. Mr. Reynolds expected, that in ten days thereafter, he would be in between 60° and 70° south latitude." Reynolds said nothing about accompanying vessels but the *Annawan* had the *Penguin* as its guardian angel. According to its log, the *Penguin* was still in port on "Wednesday 13th Janry / All this day strong gales from S^d with snow hail & rain and verry cold weather / So Ends / At 4 PM Mr Miller returned"[.] And: "Thursday 14th Jany /

First part fresh breeze from the S^d and pleasant weather / at 3 PM got under weigh in company with the Brig Annawan bound to S^d / Latter part wind from NW^d / at 11 PM Cape S^t John hove by Comp^s W^d Dis^t 2 Leage from which I take my departure [point of losing sight of land; point from which following dead reckoning will be made] / So Ends"[.]

The *Seraph*, in fact, did not arrive at Port Hatches until the other ships had left and, on 22 Jan, it sailed alone for the South Shetlands. The 'Seraph' and 'Annawan' made no contact in the Antarctic.¹⁹

APPENDIX. — JAMES EIGHTS ON THE HIGH SEAS AND IN PATAGONIA: WITH A BOW TO CHARLES DARWIN

Observations by Eights on the high seas are few, contained in a popular article that appeared in 1846, in the first of a briefly serialized series with the overall title of "Notes on natural history." The articles are not further titled; this one contains a variety of loosely organized notes relating to marine animals and their surroundings and ecology.

"De la Beche," he says, "considers it very doubtful if a shark could continue long to exist beneath considerable depths." This, Eights believes, was not always the case.

"While leaning over the vessel's side, during a most perfect calm, in the tropical sea, situated about midway between the two continents, I discovered the appearance of a fish far down in the depths below, lazily working its way upward toward the place where I was standing; indeed, so distant was it, that it seemed no larger than an ordinarily sized shad. A baited hook secured to a line, was immediately let down until within a few inches of its nose. This it unhesitatingly received, the attachment of the hook appearing but little to incommode the serenity of its movements, so that in a short time it reached the surface of the sea. A bowline was now sent down so as to surround the body of the fish, when, without difficulty, it was speedily hoisted upon deck. It proved to be a *shark* of a peculiar species, measuring nearly twelve feet in length. The upper caudal fin was much elongat-

ed, and tapering; the dorsal and pectoral ones of a clean white, differing from the general color of the animal, which was of a deep greenish-blue. The beautiful little pilot fish was its companion until its arrival at the surface, when it immediately left and placed itself beneath the counters of the ship. Two specimens of remora, or sucking fish, adhered to its back until it reached the deck. On dissecting this shark, the stomach was found to be entirely empty, not the slightest vestige of any thing like food could be discovered. Pieces of the intestines, and likewise of the flesh, when placed on the hand, produced a sensation nearly equal to that of ice. Previous to this, we had oft-times remarked the sudden appearance of one or more of this species whenever the wind subsided and the sea became calm, and was greatly at a loss to account for it, until the circumstances attending the capture of this individual satisfactorily proved to us, that they came from beneath, and were inhabitants of the deep sea, never having observed them when the surface was in the slightest degree agitated into waves."

After a full stop, he continues: "'M. Pouillet has observed that the gas in the swimming-bladders of fish brought up from the depths of about 3,300 feet, and therefore under a pressure equal to about 100 atmospheres, increases so considerably in volume that all muscular effort being unable to restrain it, it forces the bladder, stomach, and other neighboring parts outside the throat into the form of a baloon-shaped mass.' *De la Beche on marine animal life.*

"This curious fact I had frequent opportunities of observing, when on the banks of Brazil and along the Patagonian coast a few years since. In water, sixty-two fathoms deep, we caught an immense quantity of fish belonging to the genus *Gadites*, which at these places inhabit the bottom of the sea; on reaching the surface, they almost invariably presented the appearance here stated. Such of them as had disengaged themselves from the hook, were in a short time seen floating at the surface, being unable again to descend in consequence of their swimming-bladders being thus greatly distended, and, with the neighboring parts, protruding far beyond their throats.

"Observations on the open sea and in high southern latitudes have perfectly satisfied me that fish do not abound in either places, and are only to be found in the greatest abundance on soundings and along shores, in regions comparatively moderate. In sailing from the American coast to that of Africa, and from thence again to a high southern latitude, we found them extremely limited both as to genera and species. The flying fish we were daily in the habit of seeing as they arose from the bows of the ship in their flight over the sea. The parrot fish, whose beautiful and evanescent hues in dyeing have so often been the theme of admiration, were comparatively scarce. The shark, with its inseparable companions, the pilot and sucking fish, only during calms; a small species of file fish but once, and two of scomber completes the list.

"The bonita and the albacore, the two species of the last named genus, were exceedingly common in the tropical seas. When we reached the sixth degree of north latitude we fell in with an immense shoal of them, which day and night kept perfect time with the vessel's speed, until our arrival at a corresponding latitude south; beyond which, we saw them no more. The appearance of these fish during the night exhibits a most interesting and beautiful spectacle. The friction of their bodies in gliding through the waves but a few feet beneath the surface, cause the surrounding waters to emit a brilliancy of phosphorescence, to such a degree, that the vessel seems to be richly imbedded in a mass of liquid flame — not unaptly resembling a multitude of meteors pursuing their varied courses through the night.

"A circumstance occurred which satisfactorily proved to us that this individual shoal never left us during the whole distance, but accompanied us as an escort to the very boundaries of their domain. When first discovered, the seamen were daily in the habit of striking them with the grains from the bows of the ship: one of them having been struck, was brought to the surface, when the iron losing its hold, it escaped, bearing on its side a large ragged wound, which easily distinguished it from its comrades in the sea. As long as they remained

in company, this individual continued daily to be seen and recognized by the sailors as the 'gentleman with the patch.'

"When moored at the South Shetlands, we were constantly in the habit of suspending lines around with baited hooks over the vessel's side, but in no instance did we find them in the slightest degree molested, and the only fish that we saw during our stay of several weeks was a small species of herring that fell from the beak of an alarmed sea-bird, on being fired at in its flight."²⁰

The dates and locations of landfalls of the *Annawan* can be fixed only approximately. Beyond the fact that they probably occurred within the month of December, we are pretty much in the dark. James Eights, in any case, refers to cod-like fishes caught by the seamen during calms after one of "the celebrated 'Pamparos' along the coast of Patagonia." "After," he says, "landing at several places along the coast," they proceeded to Staaten-Land (as he spells it). In the third installment of his "Notes on natural history," he got no closer to providing a date than to write of an approach to "the La Plataen shore" that occurred "during a most beautiful morning in December."²¹

Eights's notes on the natural history of Patagonia (not all of it his own, as we shall see) make a more connected story than the segment previously quoted that included diverse observations on marine phenomena. Some of these records refer to aquatic life but it is definitely close-in life. Comments on plagiarism of Darwin's work will be introduced at the ends of pertinent paragraphs; this is clumsy but it makes apparent instances more readily examined.

"Our approach to the La Plataen shore was during a most beautiful morning in December; the first of the summer months in the southern hemisphere, with a light breeze blowing directly in for the land, and which towards mid-day, gradually fell away into a most perfect calm. The ship had been quietly forcing her way through the light waves, when our attention was arrested by the appearance of frequent and extensive patches of a reddish brown discoloration of the water, in every direction about

our path, producing much the aspect of numerous shoals. Upon repeated soundings, we found the depth in no single instance to be less than fifty fathoms, with mud and comminuted shells, constituting the bottom. On raising a bucket of this tinted water, and subjecting it to the focus of an ordinary pocket lens, it was discovered to be composed of innumerable small crustaceous animals, of an oval form, and about half a line [a line: probably, one-twelfth inch] in length, beautifully margined by a slight purplish fringe, their whole external aspect presenting a striking resemblance to some of the species of *Cytherina*, and their rapid gyratory motion immediately reminded us of the interesting forms of *Gyrinus* so exceedingly common during the months of summer, in the numerous shadowy pools in our own country. These animals, no doubt, emit a phosphorescent light during the hours of darkness, when the ocean is briskly agitated into waves. Of this however, we had no direct opportunity of determining.

[Darwin's much more extensive accounts of discolored seawater, 1839: 17-20, are more astute and diverse than Eights's but offer no evidence that Eights plagiarized Darwin.]

"As the day drew to a close, a thin greyish mist was observed, gradually disseminating itself throughout the western horizon, and before an hour had elapsed, a dense mass of confluent clouds had obscured the entire heavens, and enveloped the whole scene in a veil of almost impenetrable darkness. But it came not alone, for one of those terrific Pamparo's so much dreaded by mariners when on this coast, had set in, and continued with slight intermission, for the space of nearly three days, accompanied by some of the most intense displays of lightning and thunder, that I think I ever beheld or heard. It was truly an exciting moment; and while leaning over the vessel's side we were irresistibly led to the contemplation of the awfully grand and sublime spectacle by which we were surrounded. On every side the vast and widely extended bay of water was seen, rolling with a mighty swell, and tumbling wave over wave, in sheets of liquid flame, occasioned by the extraordinary luminosity of the sea. On

casting the eye aloft, all was as black as the very depths of darkness, whilst now and then a terrific gleam of light tore through the murky mass, and shot in wild and jagged streaks across the scene, as if the presiding spirit of the storm had arisen in its wrath, and was lashing the ocean with an ungovernable fury down to its very foundations.

"This extraordinary brilliancy of the sea, was unquestionably in a great measure produced by the myriad of animal forms that inhabit its waters. In many instances they were observed to attain a size sufficiently large as to render them distinctly visible to the naked eye, while at others they were diminished to such a degree as only to become sensible through that avenue to unseen glories, the microscope. They likewise varied as greatly in their structural forms as the species were everywhere numerous."

[Although Eights here brings forward fewer separate observations than Darwin had done (1839: 190-193), he was much more certain of their animal origin than Darwin was. It was immediately after this stormy session that sailors on the *Annawan* brought up numerous cod-like fishes, in the stomachs of which Eights found his first examples of the new crustacean that he named *Brongniartia* (1833).]

"That the ocean teems with animal life, we have in abundance the united testimony of many intelligent travellers and naturalists, whose qualifications for observation and forming correct conclusions, are altogether indisputable; and often have I when leaning over the vessel's side, during the most perfect calms, discovered the sun's rays to be intercepted by numerous minute points, in such a manner as to cast their mingling shadows far below. When the waters of the sea are violently agitated during a storm, the constant friction of their bodies with the waves, cause these animals readily to emit those magnificent corruscations, which have so often been the theme of admiration, and also given origin to so much wonder and varied speculation in the development of a cause. Fishes are not unfrequently seen, during the night, to leave a stream of splendor in their passage through the waves, which alone prove

sufficient to render their forms conspicuous to the unaided eye.

"In approaching these shores, and long ere the land became visible, the ship was visited by an immense congregation of butterflies, of varied and interesting species, the greater proportion of which were rather more than an inch in the expansion of their wings. They fell upon the deck and rigging for a short time in such a manner as to present the appearance of falling flakes of snow. They were in all probability driven on their course by the prevailing breezes from the land, and either became bewildered in their flight, or were unable to make headway and regain the shore in opposition to the continuous wind."

[Again, Darwin offers many more examples of flighted insects found at sea, including vast armies of butterflies; but there is no evidence that Eights got his observations from Darwin; indeed, the next paragraph shows Eights much more certain than Darwin that such flights are forced: As Darwin had it, many flights occurred on days that were fine and calm — "we cannot suppose that the insects were blown off the land, but we must conclude that they voluntarily took flight."]

"The many instances of animals, and particularly insects, alighting on vessels at great distances from the land, are facts exceedingly interesting to the naturalist, inasmuch as they readily furnish an explanation of one of the methods by which islands situated far remote from continents, have been visited, and finally become populated by living forms, corresponding in every degree with those peculiarly indigenous to these vast expansions of land.

"While we were in the parallel of the Canaries, about three hundred miles to the westward of the nearest isle, two swallows were observed flying about the ship, in an apparently much exhausted state. In a short time one of them lit upon the fore-yard contiguous to the mast, and was without difficulty obtained. It appeared extremely feeble and in a few moments it expired in my hands. It proved to be the *Hirundo rustica* of authors.

"Charles Lucien Bonaparte, in a letter to the secretary of the Linnean Society, dated from on

board the United States ship Delaware, near Gibraltar, states 'that being five hundred miles from the coasts of Portugal, and four hundred from those of Africa, we were agreeably surprised by the appearance of a few swallows, (*H. urbana* and *rustica*) but what was my surprise in observing several small warblers hopping about the deck and rigging. These last were the *Sylvia trochilus* or hay bird.'

"Soon after entering the trade-winds, in latitude 20 deg. 16 min. north and longitude 23 deg. 2 min. west, we were greatly surprised by the arrival on board of a large species of acridium (Grasshopper.) Our position was about one hundred and fifty-one miles from, and nearly to windward of the Cape de Verd islands, so that it is not altogether likely that this insect could have worked its way for such a distance, almost directly in the wind's teeth. The next nearest point of land, and from which the trade-wind almost incessantly blows, is Cape Blanco on the African coast, a distance of four hundred and twenty miles, a prodigious space for so frail an animal to be carried by the wind. It is also a little singular that about two years later, when H.B.M. surveying ship Beagle was in a position fifty miles nearer to this Cape, a similar grasshopper, and in all probability the same species, came on board and was caught, as is stated by Mr. Darwin, the naturalist belonging to that ship. The insect I obtained is at present preserved in the collection of the Albany Institute."

[Darwin characterized this (1839: 186-187) as the "most remarkable instance I ever knew of an insect being caught far from the land; while his anecdote resembles Eights's in many respects, that Eights was not fudging data is proved by Albany Institute "Catalogue of Properties" for October 1833, where we find the accession: "African Locust blown on board the vessel by the North East Trade Winds, 300 miles from the Coast." The matter of the exact distance Eights was from land can perhaps be ignored here.]

"After the storm had subsided, we were some days in regaining the land, at a point much farther to the south, immediately where the Rio Negro disembogues itself into the

sea, on the northeastern coast of Patagonia. We continued leisurely sailing along the coast, crossing the Bay of St. Matthias to the peninsula of St. Joseph, situated in latitude forty-three degrees south. The shore as we passed along, presented the appearance of a series of precipitous cliffs, stratified in nearly a horizontal position, and seemed to be composed of a yellowish colored clay, with numerous slides, or 'tumble downs' as they are emphatically termed by the sailors, with occasional ravines, worn by the drainage waters from the plains, in their passage to the sea. In pulling in for the land, we were continually surrounded by the *Spheniscus demersa*, called the jackass penguin, from the circumstance of the singular habit it possesses when on shore, of throwing back the head, and producing a sound very similar to the braying of that animal. We were likewise accompanied by several seals, who raised their dark heads above the wave and apparently gazed with silent wonder and astonishment at our appearance as we proceeded along, following in the wake of our boat, but a few feet astern, until we fairly reached the land. These animals are the *Platyrrhinus jubata* of Forster, or hair seal of mariners. Several of the males, or sea lions, as they have not unaptly been named, were quietly reposing on the beach, and obstinately refused to relinquish their comfortable position, until compelled to do so by the close approximation of some of the crew. These sea lions are provided with a hoarse roaring voice, and have their necks clothed with a long, curling mane, so that during their quiet enjoyment on the shore, and also when disturbed, present a very striking resemblance to their more formidable prototype in name, upon the land, and it was with no small difficulty, that the inexperienced observer could be persuaded into the belief of their perfect non-identity."

[I have corrected a typesetter's lapse in dividing the generic name of the sea lion; the final sentence is James Eights at his best — what might have been a simple statement is meticulously crafted into total incomprehensibility. That they had crossed the Bay of St. Matthias puts them well south of the mouth of the Rio Negro, in the vicinity of Valdés Peninsula.

This appears, from the context, to be their first actual landfall in Patagonia.]

"The men were leisurely straggling along the beach, amusing themselves by pelting the seals as they arose tumbling amid the surf, whilst we ascended a small ravine to the plain above. A condor — the first we had seen, was lazily basking in the sunlight upon a projecting headland, with drooping wings, so characteristic of the tribe to which it belongs, when digesting their food. Upon being so suddenly disturbed, it reluctantly took to flight, soaring gracefully over our heads in gradually expanding circles, until it became lost to the eye in the remote distance toward the west."

[There seems nothing wrong with Eights here, except that he was not much of an ornithologist; Darwin (1839: 219-224) outdid him many times over — with, be it said, much more opportunity for observation.]

"Upon gaining the summit of the cliff, and directing the sight over the widely extended scene, a prospect was disclosed that for sterility and desolation can scarcely be surpassed on the surface of the globe. In every direction but in that toward the sea, and as far as the power of vision could extend, it was one wide monotonous plain, occasionally disturbed by such slight and gentle undulations, as scarcely at all to be discernable. The eye wandered in vain for some solitary spot of verdure to afford it a moments relief, but none was anywhere visible save a few stunted evergreen shrubs, with sombre foliage sparingly scattered along the margin of the cliff, and in a still less degree, some rigid or succulent herbaceous plant, which seemed to contend for a bare existence in some sheltered or secluded recess among the rocks. The whole scene strikingly resembled the sea, in all but its beautiful hue. No sounds but those proceeding from ourselves disturbed the profound solitude that reigned around, and were it not for the appearance of a single swallow, skimming the surface of the ground in pursuit of sustenance, the stridulous sounds of some orthopteras insect, and the well defined trail of the wandering Guanaco, it would have been difficult to realize that animated existence had ever approached the spot.

"Standing pools or salinas are not unfrequent in the depressions of these plains, some of them of considerable extent, which in the winter months, when the rains descend in copious showers, become filled with brine, but when the summer sun evaporates the water it leaves them covered with a glistening sheet of white, resembling snow. This deposition is composed of crystalline salt, sometimes more than a foot in thickness and then it becomes almost the only employment of the native Indians to transport it in large quantities for sale. Owing however to its containing foreign impurities, it is not much esteemed for the preservation of animal food. Waters that percolate this plain, and discharge themselves in trickling rills along the shore of the sea, possess at all times an exceedingly brackish taste, and the few herbaceous plants to be met with scattered along the surface, emit the same flavor upon being chewed. These salinas are margined by shores consisting of a slimy backish mud, containing in large quantities most beautiful chrystals of gypsum, and strange as it may appear, are inhabited by numerous naked worms, or annelides and infusoria. These salt lakes are the usual resort of the flamingo, and this beautiful and interesting bird may not unfrequently be seen in some considerable numbers traversing the mud in search of a comfortable repast."

[That Eights may have seen such a saline cannot be denied; however, this account seems possibly to have been largely summarized from Darwin, *Journal of Researchs*, pp. 75-77, where a more elaborate account occurs; the parallel of subjects in the two accounts is considerable: winter filling of depressions, summer evaporation; extent of salinas, depth of salt deposition; exploitation by Indians; lack of esteem of it for food preservation; the large crystals of gypsum and the abundance of worms; the presence of flamingos. Most sentences in Eights mirror those to be found in Darwin (although shortened and hardly copied verbatim). An exception is the statement about the salty taste of herbaceous plants growing there.]

"The most characteristic animal frequenting these plains is the Guanaco, (*Camelus llama*) or American camel, from its general resemblance

to that well known beast of burden in the East. It has no hump, and is in every respect a singularly beautiful and graceful creature, with long slender neck and legs, and clothed all over with a dense mass of chestnut colored hair. They are frequently to be met with traversing the plain in herds of from ten to thirty, and sometimes more, moving along in regular lines, confining themselves to well beaten tracks from which they rarely diverge. When approached, they utter a shrill neighing note of alarm, and in a short time trot rapidly away in a direction towards the nearest hills. In some instances however they exhibited a considerable degree of curiosity, particularly when taken by surprise. The natives appear to be well acquainted with this peculiarity of habit, for they not unfrequently take advantage of it by throwing themselves upon the ground and performing numerous strange antics, in order to entice them within the influence of their weapons. In this manner great numbers of them are annually slain, not only for the purposes of food, but also for the construction of mantles from their skins. These animals have particular spots selected for depositing their excrement, which places are much resorted to by the Indians for the purpose of collecting the substance for fuel. It proves an excellent substitute for wood, which can rarely be obtained in sufficient quantity on these plains. They likewise are possessed of a singular habit of resorting to some favorite situation on the approach of death, to lay themselves down and die. This is generally among the light brushwood in the neighborhood of some running stream. Several of these receptacles for the dead have been discovered, profusely strewn with bones, and in no instance have the marks of teeth been visible, to denote their destruction by wandering beasts of prey. This animal has an extensive geographical range inhabiting the entire temperate region of South America, as far as the straits of Magellan. At the period of the conquest, it was the only beast of burden the Peruvians possessed, carrying from one hundred to a hundred and fifty pounds at a load, and this for short distances only."

[This paragraph requires comment. Eights here does not distinguish between wild and

domesticated forms of this South American camelid, there being two domesticated forms (llama, proper, and alpaca) and two wild forms (guanaco and vicuña). As for parallels with Darwin's much fuller account of this mammal, *Journal of Researches*, pp. 195-197, there are several. Eights's description seems to be his own; his reference to flock sizes is much like Darwin's. Their usual behavior in neighing and quickly disappearing is described similarly in both accounts, although Eights's is not word-for-word copying. Darwin's account of their curiosity when seeing a hunter engaging in "strange antics" is close to Eights's. It is very possible that Eights got his statements about both the piles of excrement and the use of the dried product for fuel and the notion of a communal dying place from Darwin; the two accounts are quite similar — even to the reference to absence of tooth marks on skeletal remains. Eights's reference to geographic distribution may well be a paraphrase of Darwin but his notice of them as beasts of burden is his own or, at least, not in Darwin's main account of the animal.]

"Wherever this plain supports a growth of grass, which is generally of a coarse, brown, wiry nature, the common deer of the country (*Cervus campestris*) may not unfrequently be seen, quietly grazing in herds consisting of from a few in number, up to a hundred or more, and when their position is to windward of the spectator, the exceedingly nauseous and disagreeable odour emitted by the buck, taints the surrounding atmosphere to such a manner as to render it distinctly sensible for some miles distant. When a person is mounted they are difficult to approach, but when crawling along over the surface of the ground, their curiosity seems to be excited to such a degree that they without hesitation gradually draw near the object of their wonder as if for its gratification, and it is in this manner that the Indians decoy them into shooting distance and destroy them in great numbers. It is in pursuit of these animals and the guanaco, that the puma or South American lion is frequently enticed down into the plains, and their destruction is speedily accomplished by either dislocating or fracturing their necks,

as the skeletons of those which have become victims to these beasts of prey, upon inspection, have universally presented this appearance."

[Darwin, *Journal of Researches*, pp. 55-56, uses the same scientific name; he seems to say nothing of their having been seen in herds of a hundred or more; his accounts of their curiosity and the method of killing them by hunting on foot and arousing their curiosity and of the singular overpowering and offensive odor of the male is similar to Eights's; Darwin, p. 328, was told that in killing large prey, the puma "always" breaks the neck of the prey — "I have seen in Patagonia, the skeletons of guanacoës, with their necks thus dislocated"; the parallels here may be accidental.]

"Inhabiting the vicinity of rivers and fresh water lakes, is to be found the largest rodent, or gnawing animal, hitherto known to naturalists, the *Hydrochaeris capybara* or water-hog. I know not of its being found in this immediate neighborhood, but am informed that it is exceedingly common a few degrees to the north, particularly along the tributaries of the river Plata. They grow to some considerable size, frequently attaining a weight of nearly a hundred pounds, and when seen at a distance, greatly resemble pigs, but on closer inspection their relation to the cavies and rabbit is strikingly perceptible. A fossil species closely connected with this, has recently been found in the redish [sic] clay of these plains, associated with numerous other extinct and gigantic quadrupeds."

[Clearly, Eights *had not seen* capybaras; Darwin had not heard of them south of the Plata; the one he shot there weighed 98 pounds, indeed "nearly a hundred pounds." Both Eights and Darwin refer to jaguars as potential enemies in some areas; Eights did not see them. Whether the reference to fossil capybaras associated with extinct mammals is Darwin's remains to be confirmed; if Eights had seen them himself, one might expect him to be more specific.]

"There is another singular little animal inhabiting this place in great numbers which is rarely seen above the ground. Its habits are nocturnal, and very similar to those of the mole, burrowing in ramifying trenches just beneath

the surface of the soil, for unknown distances, and throwing up small hillocks of earth before their openings. They are said to live in families of six or eight together, and when at their usual occupation, utter strange and unearthly sounds from their subterranean abode. These noises oft times greatly surprise an individual unacquainted with their habits, while passing over the plain. Sometimes it appears to proceed from directly beneath his feet, and then again it is heard repeated in quick succession from various distances around, so that in a short time from seeing nothing visible, he becomes exceedingly bewildered in endeavoring to obtain a reasonable explanation. The natives have given to it the name of Tucutuca, in imitation of this peculiar sound. It is the *Ctenomys Brasiliensis* of authors, and besides some few others species found on the pampas, an allied extinct animal has likewise been procured."

[Certainly, in general, there was an abundance of rodents; see Darwin, *Journal of Researches*, pp. 56-57. In regard to this species, called "Tucutuco," species *Ctenomys Braziliensis*, Darwin, pp. 58-60, has a much fuller but similar account of family sizes, patterning of burrows and vocalization. It seems likely that Eights made a brief summary of Darwin's remarks.]

"A singular feature in the landscape, is produced by the habitations of the Biscacha, (*Lagastomys trichodactylus*) which form their burrows in the clayey portion of the soil, near those spots where thrive most luxuriantly the giant thistle of the plains, upon the roots of which they are supposed chiefly to exist. In general appearance these animals much resemble the common rabbit, but differ considerably in their zoological structure, and what is a remarkable circumstance in their habits, is that they are universally found associated with the same little burrowing owl (*Athene cuniculata*), so commonly met with among the Prairie dog villages in the western portion of the United States. These animals are endowed with the curious propensity of picking up all hard and loose substances that they occasionally meet with in their perambulations over the plain, and conveying them to their dwellings, where they may usually be seen piled up in considerable sized conical

heaps before their entrances. For what essential purposes these mounds are constructed, remains yet a subject of conjecture, but the Indians profiting by the circumstance, frequently destroy their symmetry in searching for small articles which at any time may have been lost on the plain near their dwellings, and sometimes as it was stated with complete success."

[The Biscacha, or Viscacha, is called *Calomys bizcacha* by Darwin, p. 143; why Eights may have updated its nomenclature is not clear. Its requirement of a clay soil is noticed by Darwin, as is its (according to the Gauchos) nearly exclusive use of thistle roots as food. Darwin's account of their habit of dragging hard objects back to the burrow-mouth, admittedly mostly hearsay, is much fuller, although one might easily derive Eights's statement from it without precise plagiarism. Darwin, too, p. 145, mentions the close association of burrowing owl with viscachas, although he restricts the symbiosis to certain areas. The parallels between owls and viscachas and owls and prairie dogs are Eights's own, drawing from his reading.]

"The Agouti, (*Cavia Patagonica*) found here, belong[s] to the family of the Guinea pigs, and greatly exceeds them all in size, being nearly twice the magnitude of the common hare, and which it much resembles when seen at a short distance peaceably hopping over the surface of the plain in small numbers together. Their legs are remarkably long, which enables them when alarmed to make extraordinary leaps. They are exceedingly numerous, inhabiting the burrows in common with the biscacha and little owl, but when these animals do not exist in their immediate neighborhood the agouti readily forms for itself habitations of a very similar nature. This is likewise the case with the little owl. When properly dressed these animals form an excellent article of food, but is held in little repute by the wandering tribes."

[Here, Eights's account of the agouti as food resembles Darwin's reference to the viscacha; Darwin has flesh of the agouti white but "rather tasteless and dry." Their being twice the bulk of hares, etc., is as in Darwin (pp. 81-82) — Darwin properly cites the European hare, while Eights would not have

had any experience with an American hare for comparison.]

"There is also a small species of armadillo found quite common at this place, which is so remarkably rapid in its movements that when discovered it immediately buries itself beneath the earth so quickly, as to render it almost a matter of impossibility to obtain them. When attacked by a dog or other animal, they roll themselves up into a ball, similar to the woodlouse, and their shells being impervious to the teeth, it slips from the mouth and rolls for some considerable distance over the plain. Two other species are likewise found here, which differ some in their habits, one at least being nocturnal. Their food consists of reptiles, insects and vegetables. When roasted in the shell, this animal furnishes a delicious repast."

[That there were three species in this general region, one of them nocturnal, is noted by Darwin, p. 113; Eights seems rather to conflate Darwin's species, making his a combination of the small *pichy*, which can dig itself in with such singular rapidity, and the *mataco*, with its ability to roll itself "into a perfect sphere, like one kind of English woodlouse." Perhaps Eights's observation about their service as human food is his own. Darwin, pp. 113-114, does note: "It appears almost a pity to kill such nice little animals, for as a Guacho said, while sharpening his knife on the back of one, 'Son tan mansos' (they are so quiet).]

"The most characteristic and interesting bird frequenting these plains is the South American ostrich (*Struthio rheu*.) It is frequently to be observed in flocks of from twenty to thirty, feeding on the scanty vegetation, which at times clothes the surface of the ground, and when seen from some gentle elevation, in strong relief against the intense blueness of the sky, they present a truly picturesque, though somewhat formidable appearance. When first approached they are seemingly quite tame, but on a nearer approximation they immediately spread out their short wings and sail off with an unusual speed, easily distancing the fleetest horse in his wildest career. The males can easily be distinguished from their companions by their superior size, larger heads and deeper

color of the plumage, and are said while feeding to utter a peculiar deep-toned hissing note, the sound of which appears singularly deceptive to the ear, so that an individual present not suspecting from whence it proceeds, becomes frequently excited to no small degree of alarm. They are said also to feed on small fishes and moluscus animals, being frequently seen wading about the muddy shores and in the shallow waters of the sea, and likewise swimming from one rocky islet to another, in some secluded bay or rivers mouth. Their nests are merely shallow depressions in the ground, and each one generally contains from twenty to fifty or more eggs. The males are said to perform all the duties of the female in sitting on the nest, hatching out the young, and accompanying them for some time after in their perambulations over the plains. While thus occupied, these birds are exceedingly fierce and dangerous to approach, so that the Indians are sometimes obliged to defend themselves with some considerable energy against their vigorous assaults. It is a well known fact that several females deposit their eggs in the same nest; a singularly wise economy of instinct, and happily adapted to the peculiar circumstances in which they are placed, for by no other contrivance could so large a collection be made to agree so conveniently in age. The hen lays but one egg at a time, at regular intervals of three days each; now if all those found in a nest were the production of a single hen, the time that must necessarily elapse from the commencement of laying until its termination, would in all probability cause most of them to become addled and impure, and in this manner greatly interfere with one of the most simple and beautiful provisions of nature. Single eggs are often found scattered promiscuously over the plain, and although unbroken, are universally spoiled. These no doubt have been dropped by the hens when the males are not sufficiently numerous to take charge of them during incubation. These birds are easily taken by the Indians, who, mounted on horses, surround them in extensive circles, and gradually close in until they are brought within the influence of their unerring bolas."

[Darwin gives a long and detailed account of both the common rhea and the more southern form that John Gould named Darwin's rhea. I think there is no doubt that Eights had no experience with the common rhea (for Darwin's rhea, see the next paragraph); his account here comes pretty much phrase by phrase from Darwin, pp. 105-110, although it is much shortened. Charges of plagiarism can be made to stick, I fear, for there is not even an allusion to Darwin's name.]

"There is another species of ostrich, which in general appearance much resembles the rhea, and though smaller in size is a far more beautiful bird. Its plumage is of a deeper hue and most pleasingly mottled with white and black, the legs are shorter and covered much farther down with feathers; in their habits they are strikingly similar to the former species, but are found in smaller numbers herding together, and do not so readily expand their wings when taking to flight. Their eggs are fewer in number and rather smaller in size, varying slightly in form and characterised by possessing a beautiful tinge of blue. This species is rarely found in the north, but inhabits the southern portion of Patagonia, almost to the exclusion of the larger one."

[See Darwin, pp. 108-110; Darwin's party had prepared for food his initial example of this form before he realized his error and salvaged enough pieces of the bird's anatomy to make a presentable specimen. If Eights saw a rhea, it was this species. Even so, nothing in his account can be interpreted as indicating personal observation and I think it comes from Darwin.]

"In rambling over the plains one day, our men caught a curious little bird, which from its habit and general aspect, appears to hold an intermediate station between the quail and snipe, and which it greatly resembled, both in color and the peculiar markings of its plumage, so much so indeed as without difficulty to deceive the eyes of the inexperienced observer. It was easily obtained by carefully covering it with a hat while quietly squatting on the ground for the purpose of concealment. They inhabit the most sterile portions of the plain, either in pairs or small flocks feeding together, and so common as to be seen at almost all times

of the day, dusting themselves in the driest portion of the sand. It is the *Tinochorns rmmi-civorns* of naturalists."

[This is the seed-snipe; the generic name may also be spelled *Thinochorns*. See Darwin, p. 110, in a paragraph that immediately follows his long account of rheas; he gives a different specific name. I doubt there is significance in Eights's having adopted a different specific name. Aside from the reference to one having been caught under a hat, Eights's account shows no departure from Darwin.]

"Among the numerous reptiles belonging to these shores, the most remarkable of the number is a venomous serpent whose poison is of a most deadly nature. It is possessed of an exceedingly fierce and hideous countenance, and has been placed by naturalists in a position intermediate between the rattlesnake and viper, but more closely approximating to the former. As a substitute for the rattle, however, it is provided with a peculiarly formed tail, and whenever approached or irritated in any degree, it rapidly vibrates it among the rigid grass or other vegetable substances, and produces a sound not unlike the noise of that formidable reptile of the north."

[Darwin, p. 114, places this in the genus *Trigonocephalus* or *Cophias*; to him, Eights owes allusions to its deadly poison, its fierce and hideous (Darwin says hideous and fierce") face, its supposed intermediate taxonomic position, the vibration of its tail. If there is any personal observation here, it is the final sentence; perhaps he did indeed see one, but merely filled in from Darwin.]

"A remarkable looking little toad is likewise not unusually seen in this region. It is of a perfectly black color, with the soles of the feet, and breast stained a bright vermillion hue. It is not nocturnal like its associated species, but found during the hottest hours of the day quietly basking in the sunshine among the dry sandy hillocks and naked clayey portions of the plain. The Indians have given to it a strange diabolical name not easily to be recollected when heard pronounced by them."

[Darwin notices this batrachian in a paragraph immediately following his account of the

crotalid snake just mentioned, pp. 114-115. Here, Darwin rivals Eights in purple language: tints of "blackest ink" and "brightest vermilion." Beyond that, all is Darwin barely rewritten, except for a quaint twist. Where Eights brazenly suggests he *has heard* a "diabolical name not easily recollected," Darwin says: "If it is an unnamed species, surely it ought to be called *diabolicus*, for it is a fit toad to preach in the ear of Eve." I presume this toad, unnamed here, is today called *Melanophryniscus stelzneri*. Its preference for arid habitats can be appreciated from Darwin's notice of one which he meant to favor by dropping it into a pool of water; "not only was the little animal unable to swim, but, I think, without help would soon have been drowned."

"Besides these reptiles [sic] there is a singular lizard frequently to be observed crawling over the surface of the ground, which, when approached, immediately feigns death, and from its curiously mottled appearance, so closely resembles the earth upon which it lies, as often to be passed by an individual without being perceived; upon being disturbed, however, it speedily buries itself in the ground and as quickly becomes lost to the sight."

[See Darwin, p. 115, in a paragraph immediately following his account of the diabolical toad. He allots it to the genus *Ophlyressa* of that day. He remarks that there are many kinds of lizards, "but only one remarkable, from its habits." He does credit it to "bare sand near the sea coast," so Eights may have seen it. Eights's account is similar to Darwin's.]

"The above enumerated animals, with some dozen species of mice, are those most commonly to be met with by a traveller journeying over these plains.

"These Pampas extend into the interior almost to the base of the Cordilleras of the Andes, a distance of nearly three hundred miles, rising up in a succession of terraces, and terminating abruptly in a direction towards the east, and although the surface presents such a bare and sterile appearance, its geological construction is of a highly interesting nature. It is unquestionably a member of the Tertiary period, though the green earth so profusely dissem-

inated throughout some of the lower strata, might readily induce an investigator on first inspection, to assign to it a position among the rocks of the cretaceous group, of the Secondary series. Its entire thickness at this point is about seventy feet, rising up in a bold precipitous manner directly fronting the sea, and by this means affords to the geologist an admirable opportunity for inspecting its various strata. This whole formation rests in an unconformable position upon a thick mass of redish [sic] brown porphyry, and in an ascending series, the strata of which it is composed may be described in the following order:

"The *first* and lowest stratum visible, is composed of a greenish sandstone made up almost entirely of particles of green-earth, associated with fine grains of sand, evidently derived from some trappean rocks. It is about six feet in thickness, and is completely charged with fossils, a few of which have a close alliance to the recent species along the shores of the sea.

"The *second* is a layer of about eight feet thick, composed of a fine grained yellowish marly clay, with but few fossils.

"The next in order is a coarse grained, greenish sandstone, very similar in appearance to the lowest stratum, and is likewise abundant in organic remains. It has a thickness of nearly nine feet.

"The *fourth* in number is a layer of yellowish marly clay, eight feet in thickness, and with rarely a fossil.

"The *fifth* is a dark bluish sand, partially indurated, though crumbling readily in the hands. It is six feet thick with no remains visible.

"The *sixth* is a fine grained, yellowish, marly clay or marl, ten feet in thickness and abounding with large pectens almost to the exclusion of other fossils.

"A light bluish covered sandstone succeeds, six feet thick, with some few organic remains.

"The *eighth* is a ten foot stratum, of a red and yellowish appearance composed of marly clay mingled with sand. The upper portion is much broken up, but no fossils are visible at this place.

"The *ninth* and upper stratum varies exceedingly in thickness, being at this point

about ten feet, while at other locations it frequently exceeds one hundred, and is chiefly made up of rounded pebbles, consisting of fragments of granite, trappean rocks, porphyry, quartz, jasper, pumice, and agates in abundance. This great covering of gravel, has, in many places been entirely removed by the action of flowing waters over the surface of the plain at some far distant era, so that the stratum of sand and clay from beneath, has been frequently exposed to view, and in some instances to no inconsiderable extent."

[Joel Hedgpeth, in "James Eights of the Antarctic," p. 45, notes that Eights was a better geologist than Darwin and that he evidently depended more on his notes than on Darwin's writings. What may be inferred, too, is that Eights had a chance to investigate few sites — perhaps only one — and took advantage of it. Darwin attempted to paint a much broader picture. I am unable to comment further on the astuteness of Eights's geological observations; one needs to know precisely where he was and then one must overcome a century and a half of permutation of jargon. Darwin's general discussion of the step-like terraces of the Patagonian countryside begins on page 200. Eights's entire account of Patagonian geology (pp. 256-259 of the present work) was reprinted as "Geological notice of the coast of Patagonia," in the *Country Gentleman* in 1853.]

"The numerous fossil organic remains found in the above section, are characteristic of the Tertiary period, and with the exception of the giant mammalia, in all probability to its most ancient strata.

"In the more recent deposits [sic] of these plains, and evidently formed by the disintegration of its strata, are at present to be found the remains of some of the most remarkable gigantic animals that have ever inhabited the globe, and which at some far distant period of time held undisputed sway, and throve luxuriantly upon the vegetation that once had an existence in this region of country, now so bare and desolate to the sight. They are to be discovered in the greatest profusion, associated with numerous recent species of shells, which may yet to be found both on the land and in the sea in this

vicinity, furnishing to the mind convincing evidence, that they lived and passed away at a comparatively recent era of the earth's history, without leaving any other indications of their existence. In some few instances, even the genera to which these animals belonged, are no longer to be met with on this great continent of the west. Those most commonly met with belong to the following genera, and many others have been found and described by naturalists. They are nearly all about the size of the elephant, and most of them are represented by diminutive species still living about these plains: mastadon, megatherium, megalonyx, mylodon, toxodon, scelidotherium and equus."

[Spelling as in Eights; compare Darwin's informed and thoughtful remarks on these great mammals and their disappearance, pp. 209-212.]

"Skirting the shores of the sea and extending beneath its waves to the distance of about one hundred miles to the east, is to be found a continuous plain, and from what little is known of its nature, it appears to exhibit in a peculiar manner indications of a much lower and similarly constituted terrace, or step. It extends along the South American coast for an immense distance, and is familiarly known as the Brazilian and Patagonian banks. At its eastern termination it falls abruptly into the profound depths of the ocean, and for nearly its whole extent supports an average mass of about sixty fathoms of water.

"From some recent geological researches of ancient sea beaches, situated far into the interior of the land, satisfactory evidence has been furnished, of the gradual upheaval of this entire range of country, from the Rio de la Plata to Cape Horn, a distance of more than twelve hundred miles, and at this point to an elevation of four hundred feet; and as there is every reason to believe that this rise of the land is still in progress, I think we may safely infer that at some future and unknown period of time, this bank will have slowly emerged from the waters and become a part of the present existing continent, and by that means furnish a striking illustration of the manner in which these Pampas have been originally produced; and during the

elevation of this great terrace, the numerous strata of which it is composed will successively appear to view, disclosing in the greatest profusion the remains of the various existing animals of the sea and neighboring land, occasionally mingled with works of art, proving to generations yet to come, that civilized man was a denizen of the earth long e'er this widely extended plain had risen from the waves, and become in all probability a vast and fertile scene."

[See Darwin, pp. 204-206; wherever he got his information (and he would have strengthened his case by citing authority), Eights need not bow to anyone in terms of an evolutionary, if somewhat apocalyptic, point of view.]

"On casting the eye over a chart of the Atlantic ocean, we will scarcely fail to have our attention attracted to the singular conformity of the shores of the three great continents: Europe, Africa, and America; but far more remarkable will it appear, when we contemplate for a moment the wonderful agreement in their geological construction. The primary ranges of Canada, have their equivalents in the elevated portions of Norway and Sweden, and even the mineral region of Lake Superior is replaced by the Ural mountains in Russia. The great silurian, devonian and carboniferous systems of the United States, are beautifully represented in Russia, Germany and Great Britain, and are alike accompanied by the wide spreading secondary and tertiary formations. The volcanic and trappean rocks of the Azores, Canary and Cape de Verd islands, are repeated in the West Indian group of isles, and the vast tertiary deposits of the African continent and the immense extent of the same formation in southern America, present little or no dissimilarity in their respective geological ages, as the fossil shells in some instances have been perfectly identified; and we may continue still farther, and compare the devonian rocks of the Falkland islands, with those of the same period in the vicinity of the Cape of Good Hope. This enumeration is merely intended as a general comparison. Were it necessary, however, to enter into a more minute detail, a much more particular relation might easily be furnished as an illustration."

[Eights was certainly a birth-right Continental Drifter! However, he falls into mere geographical homologizing along the way, as in matters having to do with mineral-rich regions in North America and Russia.]

"When we reflect upon these circumstances, we are almost irresistibly led to the conclusion that the immense space at present occupied by the Atlantic Ocean, was originally a continuous tract of land, which has since been gradually submerged beneath the waves, while the mountainous regions now constituting the elevated portions of the continents on either hand, were as slowly rising from some unknown and widely expanded bodies of water. From reflections such as this, we are almost induced to give countenance to the idea that the far famed Atlantes of Plato, was not altogether based upon a vision.

"The belief so long entertained, that the Earth was the emblem of stability, is fast becoming obliterated from intelligent minds since the investigations of geologists have from time to time disclosed new and important facts for their consideration. The numerous discoveries that have recently been made of the gradual rise of large tracts of land in some portions of the globe, and equal depressions in others, have satisfactorily established the theory of oscillatory movements in the earth's crust. The gentle upheaval of Norway and Sweden in the vicinity of the Gulf of Bothnia, and the depression of Greenland beneath the sea; the rise of southern America, and the slow subsidence of the Coral islands in the Pacific Ocean, are but a few of the many instances that might be produced in confirmation of its truth."

NOTES

1. See Bertrand, *Americans in Antarctica*, pp. 146-147; Edmund Fanning and Benjamin Pendleton, "Memorial" (House Doc. 61, 1832) and Fanning, "Memorial" (Sen. Doc. 10, 1833); E. Fanning, *Voyages Round the World* (1st ed., 1833), pp. 478-489; R.O. Cummings, "The organization of the American Antarctic expedition of 1830" (1962 [1965]); E.S. Balch, "Stonington Antarctic explorers" (1909: 486-489); John Stewart, *Antarctica* (1990), "Palmer-Pendleton expedition," p. 743. Bertrand alludes to the slight official stewardship provided: inspection of the vessels before departure and a Foreign Service memorandum that was

circulated in foreign parts indicating that the government "regarded the expedition favorably." See also: Fanning, *Voyages* (1833), p. 489; Fanning's interest in popularizing the claim of sponsorship of government was not entirely selfless, since he and Pendleton hoped to recover some of their losses through claims in the U.S. Congress. Regarding the log of the *Annawan*, E.S. Balch, "Antarctic addenda," p. 87, alleged that it was in the possession of Mrs. Richard Fanning Loper, daughter of Capt. Alexander S. Palmer. If so, it has not surfaced since Balch's day; it did not go with Mrs. Loper's family papers to the Library of Congress, "Papers of the Palmer-Loper families," LC Shelf No. 18,965, consisting of documents filling 5.2 feet of shelf space, about 4,000 items, 9 reels of microfilm.

2. Survey of Federal Archives, 1940, vol. 1, "Ship registers of New Bedford, Massachusetts," pp. 15-16.

3. I have not been able to establish dates for Pendleton. Both the Palmers are memorialized by E.S. Balch, "Stonington Antarctic explorers," pp. 474-476; Nathaniel Brown Palmer was born 1799, died 1877; Alexander Smith Palmer was born 1806, died 1894. Nat Palmer has a considerable following, even having his portrait on a United States stamp (25 cents, Scott catalog no. 2386, 1988); see also J.R. Spears, *Captain Nathaniel Brown Palmer* (1922) and Robert Silverberg, *The Adventures of Nat Palmer* (1967); and J. Stewart, *Antarctica*, p. 742; inevitably, Palmer enters into controversies over who discovered what first.

4. Previous references to Reynolds apply. See for now: Bertrand, *Americans in Antarctica*, p. 147; Reynolds himself wrote: "In the month of October, 1829, I sailed from the city of New-York in the brig Annawan...to the South Seas and Pacific Ocean" (*Voyage of the U.S. Frigate Potomac*, 1835: p. v); in her embarrassingly laudatory account of the 1838 expedition, in "The first American exploring expedition," "Miss A.E. Carrell" (actually, Anna Ella Carroll, 1815-1894), with fulsome praise of "James R. Reynolds" (p. 60), mentions Reynolds alone as "scientist" on the 1829-1830 voyage; Mrs. R.B. Harlan (*The History of Clinton County, Ohio*, pp. 580-585) has a decent beginning of a biography of Reynolds but manages to get a lot of facts wildly skewed in regard to the Antarctic expedition; in Henry Howe, *Historical Collections of Ohio* (vol. 1, 1904, pp. 431-433; the same information appeared in the edition of 1889), we hear much the same as above, with an added personal note: "Mr. Reynolds in his politics was a Henry Clay Whig, and...delivered free lectures in behalf of protection. At one of these we were present. According to our memory he was a firmly built man, of medium stature, with a short nose, and a somewhat broad face. His delivery was monotonous, but what he said was solid, and his air in a high degree respectful and earnest and withal very sad, as though some great sorrow lay upon his heart..."; at a time when a better account might have appeared, Helen S. Wright (*The Seventh Continent*, 1918, pp. 78-79) heaped praise upon Reynolds but got no further than that there were "two other scientists" on board the *Annawan*. For more on Reynolds, including his alleged friendship with Edgar Allan Poe, see: R.F. Almy, "J.N. Reynolds: a brief biography with particular reference to Poe and Symmes" (1937); Aubrey Starke, "Poe's friend Reynolds" (1939); and Ian N. Higginson, "The first Antarctic voyage of Edgar Allan Poe" (1994). I have inserted in the bibliography a fairly full list of Reynolds's works.

5. For the petition of John Watson, shipbuilder, see

report on his claim by the House Committee on Naval Affairs, H.R. Rept. No. 112, 21st Cong., 2nd sess., 1831. Benjamin Pendleton's letter to Edmund Fanning, dated from New York City 15 Sep 1831 (in Fanning, 1833, p. 10), was attested to by "J.F. Watson, of Scientific Corps." Mrs. R.B. Harlan's account is in *History of Clinton Co., Ohio*, p. 584. See also: R.F. Almy, "J.N. Reynolds," 1937, p. 239, note 31; Lawrence Martin, "Early explorers of southern North America from the United States" (1940). George C. Groce and D.H. Wallace, *Dictionary of Artists in America*, 1957, p. 665, says nothing about Watson as Antarctic and austral explorer. The same is uniformly true of art biographers. P.I. Mitterling, *America in the Antarctic*, p. 97, and J. Stewart, *Antarctica*, p. 1080, add nothing to the record. The best account of John Frampton Watson, although strictly from the artistic perspective, is to be found in Nicholas B. Wainwright, *Philadelphia in the Romantic Age of Lithography*, pp. 22, 33, 46 and citations to him as printer and artist. No birth date is given. "Except for his ability as a copier of English prints, Watson's work is not of a high order and his press was never a notable one." And, "He was described as a queer chap, very conceited." He "began his career as early as 1832 or 1833 as an artist working for M.E.D. Brown. For a few years Watson was in partnership with C.A. Watson, but after 1838 he was on his own as a lithographic printer until the end of his career in 1866." Except for citing individual prints, Wainwright offers no documentation for his biographical information. Is it possible that Watson is an unsung hero of some of the drawings that Reynolds turned over to the Boston Society of Natural History? I thank Nancy Hoffmann for trying to find additional material on Pendleton.

6. D.M. Henderson, *The Hidden Coasts*, p. 31, provides no documentation for his surprising statement. The account of John Fanning Watson is by Joseph Jackson. For "Hampton," see *Argus*, Anon., 29 Nov 1833. The clinching document is: E. Fanning, *Voyages* (1833), p. 174; see also Fanning to Dickerson, House Document 147, p. 3.

7. Bertrand, *Americans in Antarctica*, pp. 147-148; Benjamin Pendleton, in Edmund Fanning, 1833, pp. 8-10; since Pendleton was in charge, he has probably inflated the role of himself and the *Seraph* in the Fanning memorial; see E.S. Balch, "Stonington Antarctic explorers," pp. 486-488. That the *Seraph* and *Annawan* did not meet at Boavista, see Fanning, *Voyages* (1833), p. 479.

8. Anon., Albany *Argus*, 30 Mar; New Bedford *Mercury*, 2 Apr 1830. The letter as printed in the *Mercury* has the editorial paragraph at the beginning added locally; I have used the text of the letter as printed originally in the *Morning Courier and New-York Enquirer*, "country edition," 30 Mar.; the *Mercury* editor got Reynolds's initials correct. For a sympathetic account of the Wampanoag war chief Annawan (d. ca. 1676), see Harvey Markowitz, ed., *American Indians*, 1: 38.

9. Pendleton, 1831, in E. Fanning, 1832, p. 3; see Fanning, Note 7.

10. If any of Eight's Cape Verde specimens went to the W.J. Hooker collection that ended in Kew Gardens, they have not been found, although several Eight's specimens of Antarctic and austral plants were sent by Beck for Hooker to identify. I am greatly indebted to Charles J. Sheviak, Curator of Botany, New York State Biological Survey, for sending the specimen to Per Sunding for identification and, of course, to Prof. Sunding for his authoritative help

in documenting it. See A. Hansen and P. Sunding, "Flora of Macaronesia. Checklist of vascular plants" (*Sommerfeltia*, 1, 1985); and F.N. Hepper and F. Neate, "Plant collectors in West Africa," 1971. Miss P. Halliday kindly checked Cape Verde specimens at Kew. In regard to the Albany Institute "Catalog" reference, which I have examined, see R.O. Cummings, 1962 (1965), p. 1032.

11. Darwin, *Journal of Researches*, 1839, p. 76. A contemporary pen portrait, not very flattering, of Boavista and its people and industries may be found in *A Narrative of Four Voyages*, by Benjamin Morrell, Jr., 1832, pp. 264-268. Water was scarce, and that of a brackish flavor. Meat was not found in surplus, any refreshments had to be brought at great price from other islands. Salt "is produced in great abundance on the north-west and eastern parts of the island in natural pans or ponds, where it crystallizes in the sun. These receptacles for sea-water are in the low valleys near the sea-shore, and in the whole process nature receives very little aid from the hand of art." Its cost, delivered on board, was about six and a quarter cents a bushel. As for the natural scene, the soil "for the most part is sandy, barren, and uncultivated." It shared in the rather temperate oceanic climate of the Cape Verdes. From Morrell's remarks, it appears that Eights was on Boavista during the rainy season. James Eights ("Notes on natural history [I]," p. 220) later recalled his visit to the Bonavista saltworks. "Their method is, during gales of wind and high tides to admit water from the sea to float over depressed plains, or basins, where for a time it is exposed to the influence of a tropical sun; after a deposition of the salt, the superfluous water is drawn off into pits prepared for its reception. In these pits, and in the vicinity of these salt-pans, large masses of beautiful transparent crystals of sulphate of lime are formed, embracing not only fragments of the trap which form the hills and rocky portions of the island, but likewise, in some abundance, the recent species of shells which inhabit the neighboring sea."

12. Manuscript, McKinney Library, Albany Institute.

13. B. Morrell, Jr., *A Narrative of Four Voyages*, pp. 145-146.

14. The charge of what would today be considered plagiarism was raised by J.W. Hedgpeth in his sympathetic "James Eights of the Antarctic," pp. 44-45.

15. See J.N. Reynolds, in Anon., 30 Mar 1830; K.J. Bertrand, *Americans in Antarctica*, p. 151; Anon., 2 Jun 1830, letter of Reynolds, dated 13 Jan; Anon., *Argus*, 14 May 1830. Eights's Patagonian plant specimens will be accounted for in a chapter on his Antarctic and austral plants; E.J. Godley, "Botany of the southern zone," pp. 159-160, gives locations as far as known. Strictly, some note could here be taken of at least one Patagonian animal that Eights described but it, too, will be treated later; J.W. Hedgpeth's "James Eights of the Antarctic" fairly summarizes Eights's animals. Some notes on both animals and plants are to be found in L. Martin, "Early explorers of southern South America from the United States."

16. J.N. Reynolds, "Leaves from an unpublished journal" (1838); "Bearding a sea lion in his den" (1839). For the kind of marine climate that greeted them upon their arrival, consult the log of the *Penguin*: "Thurs. 24 Dec 81 days from Stonington / Commences with fresh breeze from the West^d and pleasant weather[.] At 5 made [came within sight of] Statenland bearing S By W Dist 9 leagues[.] Midder [logger's own word for 'middle'?] part heavy gales from SW with a heavy sea, hove to at 5 AM[.] moderate made sail [that is, after wind moderated, made sail] at 8 came too in Port Hatchet[.] at 10 the boats started on a cruise. Ends strong wind & squally SW'[.]

17. B. Morrell, Jr., *A Narrative of Four Voyages*, pp. 71-73.

18. Reynolds, "Bearding a sea lion in his den." While *Phoca jubata* would have been acceptable then, the species name *jubata* is now restricted to the northern Pacific sea lion; the correct name for the South American sea lion is *Otaria byronia* (or *flavescens*).

19. Anon., *Argus*, 14 May 1830; Anon., *Courier*, 2 Jun 1830; *Penguin*, log; K.J. Bertrand, *Americans in Antarctica*, p. 151.

20. JE, "Notes on natural history" (I), 1846; one observation on the disintegration of basaltic columns at high latitudes will be quoted later. It must be noted that Charles Darwin (*Journal of Researches*, 1839: 190-193) was as far from explaining the phenomenon of marine phosphorescence as Eights; the observations reported here appear to be Eights's own.

21. Eights, "Notes on natural history" (III, 1847: 246). How sad that the log of the *Annawan* has been lost!

JAMES EIGHTS IN THE ANTARCTIC: FARTHEST SOUTH, 1830

With the departure of the *Annawan* and the *Penguin* from Staten Island in mid-January, James Eights was on his way for a brief look within the veil of the Antarctic. It was high summer, however much the raw cold, relentless wind and ever-present flurrying of snow and sleet denied it. He doubtless had hopes of a landfall on the fabled Antarctic Continent itself. Only our century begins to appreciate how unrealistic that dream was, considering the centuries of wild philosophizing, unproved claims, vague reports of marine phantasmagoria and hard-won glimmerings of the most southerly continent that preceded his brash adventure.¹

It is now hard for us to realize in full the daring — the supreme folly, perhaps — of the undertaking in which Eights was caught up. By the year 1900, ignorant as we were, we knew there *was* a continent at the southern end of Earth. We had a vague notion of its shape and extent. The heroic age, when men took on the unknown of the Antarctic with little more than conventional navigational skills and bare hands, was not quite over. But we had learned that even bravery and brawn combined would not turn the trick. It took sustained organization and expert maneuvering just to remain alive. Cracking the code of life there was still a long way in the future.²

Aside from the fragmentary nature of reports of lands in the south polar sector, including ghost islands thought seen through fog or beyond an impenetrable range of icebergs, conflicts arose in regard to discoveries by

commercial adventurers. Immediate airing of discoveries opened the areas up to intense competition for rapidly vanishing resources. With some sealers, you kept quiet if you found a new island rookery. Or, you remained quiet until the plums had been plucked (by yourself), only to find competing claims that others, too, knew of it but had said nothing. A century and a half of rancorous bombast from English, American, French, and Russian perspectives has hardly laid all those uneasy spirits.³

While this chapter skews perspective by its focus on James Eights, it will also attempt to sketch roughly what he may have seen. Eights's taxonomic studies and accounts of his specimens will be reserved for later chapters. General statements on plants and animals will be treated here, with comments where necessary. One is hampered by lack of an extended commentary by Eights. If he kept a detailed journal, it has not surfaced and he made little use of it. Perhaps keeping such a diary was in the bailliwick of Reynolds. Certainly, when Eights came later to write of the Patagonian coast, he leaned heavily upon Darwin. Even so, his contributions deserved fuller recognition than they got during his lifetime.⁴

First, the log of the *Penguin*, close companion of the *Annawan*. The *Penguin*'s approximate track has been mapped by K.J. Bertrand. Departure was 14 January 1830.

"Friday / 15th Janary / Commec with fine breese from N^d with passing squales / all sail set to advantage / course SSE / Brig a head /



Figure 6.1. The track of the schooner *Penguin* in Antarctic waters, 1829-1830. Map compiled from the log of the *Penguin*, which was closely associated with James Eights's brig *Annawan* during the time they were in Antarctic waters. The log of the *Annawan* has been lost. (K.J. Bertrand, *Americans in Antarctica, 1775-1948*; American Geographical Society, New York, Special Publication 39, page 152, 1971.)

Midder part light winds from NW with steady rain / Jibed ship / latter part [that is, of day] winds variable and pleasant with a large sea rolling from W^d / Saw a ship steering to SW / Latt By Act 63.25 W^d.⁵

Comments from the *Penguin* log are henceforth quoted, in part or in full, only when of general interest. The ships were sailing nearly due south from Staten Island. Saturday, 16 Jan, was a pleasant day, with "all sail set to advantage...spoke the Brig / I went on board & spent the afternoon." "A large sea rolling from the W^d / Saw a Ship steering to NW / Latt. By Act 57.14 S / Long. per Chronomt^r 61.56 West."

Sunday, 17 Jan: "fine pleasant weather...at 10 AM Cap^t Palmer came on board of [off] the Brig / Jib boom & spent the day with us." 18 Janu-

ary: "At sea bound to South Shetlands...Cold weather / Brig a head." Tuesday, 19 Jan: "passing squales of snow / midder part the same / Latter part fresh squales of wind and snow / at 11 PM took in flyingjib / took one Reef^d in the Mainsail / Ends cold weather."

Pay dirt — Wednesday, 20 January: "Commences with strong breese from SSW and squally / at 4 AM kept off E^d / thick rainy weather / at 1 PM made [that is, 'made out,' saw] the Land bearing S^d / plenty of drift Ice / in ship [?that is, they shorten sails?] / at 2 spoke the Brig & two boats on shore / at 8 returned with 75 prim fur skins / 52 pups / Ends light breese and cloudy weather."

Thursday, 21 Jan: "Lying off [meaning 'well clear of land'] Elephant I^{sd} / First part calm /

lying by of the Isl^d / at 2 AM the boats started on shore / Midder part passing squales from WSW / at 11 returned with 24 prim skins / at 1 PM started in company with Brigs boats thick foggy weather & returned with 50 sk [end of line bound in] / Lying off."

Friday, 22 January: "... thick foggy weather...Steering in for Isl^d...at 8 [?] AM the fog lights up / the boat started on a cruise a sealing in company with the Brigs boats / landed in one boat & took 35 skins / in latter part thick foggy weather & short sea / Steering on from [I have trouble with two words here] a number of Ice bergs around which are frequently falling to pieces making a noise like distant thunder / Ends with fair & calm."

"Lying off the Elephant Isl^d / Saturday 23th [log-keeper uses the ordinal 'th' whether appropriate or not] Jany 1830 / All these 24 hours light bafflin [baffling; changeable] airs from the East^d with verry thick fog and a heavy sea heaving on shore / chafing our riging & sails verry much / at 7 PM lost sight of the Brig / grate quantity of Ice a flote around us."⁶

"Sunday / 24th Jan'y / First part light airs from ESE thick rainy weather heavy sea rooling on shore & large Isl^d of Ice close to us / we hove to / Reef^d sails on the Sch^r to keep clear of them. Chafing our riging & sails verry much / verry anxious for the safety of the Sch^r / Midder part fresh breese from SW / kept off and run down under the lee of the Isl^d. / we experience a strong current setting to NE / latter part calm with thick fog."

Monday, 25 January: "First part calm with thick fog / at day light we find the current has set us to W^d / at 6 AM boat returned with 90 prim skins." Tuesday, 26 Jan: foggy; "Capt Palmer came on board & spent the day." 27 Jan: "begins calm & foggy weather / at 6 AM the fog light up / the boats started on a cruse a sealing...hands Employed in Salting skins." 28 Jan: Foggy, morning and noon; "at 6 PM the boats returned with 120 skins / latter part light airs from the E^d with clear weather / steering off[t] on awind to get a offing" [that is, putting a safe distance between ship and land?].

"Bound to King George Isl^d / 29th January 1830 / Commences calm and thick foggy

weather / at 4 AM light breese from the W^d / Steering on wind to NWN / at 10 tacked to SW / fog light up / saw the Land bearing SSE / at 2 PM kept off SSW / Set the square sail / at 4 saw Obriens Isl^d to South^d & W^d / [—] clear of Ice bergs / latter part Strong breese from NNW with thick fog / cours South by Comp^s [compass]."⁷

Entered in margin of page along side entry for 30 January is: "Pups 52 / Prime [skins]...344"; there was a "thick gale" the morning of the 30th. "Sunday 31th Jany / This day begins with light winds from WSW with squales of fog / at 4 made the land bearing by comp^s S By W / Midder (and latter part) fresh breese from SW / at 10 AM Landed in the brigs boat & took some Elephant / at 8 PM worked up & came to in Potters Cove in 12 fathoms / good bottom / found here a shallop left by James Johnson / saw a number of Ice bergs in the offing / So Ends."⁸

"Monday 1th February / First part fresh breese from the W^d with cloudy weather / at 7 AM took 2 of the Brigs boats & crews on board & got under weigh / worked up & came to in Nebles harbour / Midder & latter part thick rainy weather /...walked over & looked at the beach for seals[?]."⁹

On 2 February, "All this day strong gales from ENE with thick snow storm & cold freseing weather." "Wednesday 3th Feb / All this day fresh gales from E^d with thick snow storm & cold disagreeable weather / waiting for a chance to go a sealing."

"Lying in Nebles Harbour / 4th February 1830 / First part strong gale from E^d with thick snow / midder part breese from the S^d & cloudy weather / At 10 AM the boats started on a cruise to S^d and North^d / at 8 PM boats returned / found no sealing" [? last word uncertain].

"Friday 5th Feby / First part calm and cloudy weather / at 6 AM M^r Wilcox & Pendl-teron [word seems clear; there seems no reason to suppose the name is Pendleton; Phineas Wilcox was First Mate of the *Penguin*] started on a cruise a sealing /.../ M^r Smith returned / found no seal / went on shore & killed 50 Port Egmonts & got some water & Ends calm."¹⁰

"Saturday 6th February / Commences thick cloudy weather and calm / at 7 AM light breeze from SW / fog light up / got under run down to Potters Cove & took the boats crew from the Brig and proceeded on to W^d / Midder part light airs from NNW / latter part winds from WNW passing squales of fog / working through King George Strait / steared clear of several Ice bergs / Landed on one & got a specimen of rocks which are not [this has been added marginally after a previous word was thoroughly blotted out] found at Shetlands we found" [last two words seem added at same time as the previous word not].¹¹

"Sunday 7th February /...passing snow squalls / beating down for Clothiers harbour /...strong gales from SW with thick fog / back [?] up run down / came to in Harmony Cove / 7 fathoms good bottom / Latter part heavy gales from WSW / at 7 PM lett go secant [?] anchor / So Ends."¹²

"Monday 8th February /...heavy gales from SW By # with cloudy weather / midder part more moderate / went on shore & shot some Port Egmonts / hove up our starboard anchor / a short sea roling in to the bay / clear pleasant weather / at 11 PM got under weigh bound into Clothiers harbour..."

"Bound to Clothiers harbour / 9th February 1830 /...passing fog squales / beating out the Straits /...thick snow and sleete / stood in & made the land at 4 PM / hauled off / made all snug for the night / grate number of Ice bergs along the cost / Ends thick snow squales and verry cold disagreeable weather."¹³

"Wednesday 10th Feb / Commences with a breeze from NE By E with thick snow squales and & [!] sleete / worked up into the mouth of Yankee Straits / came to in shallow Bay / tide a falling / struck several times / got under weigh / middle [!] part fog cleared up / run down & came to in Sherriff Cove / 20 fath^s / good bottom / Ends fresh breeze from NE."¹⁴

"Thursday 11th February /.../ look'd at the beaches / found a few seal / walking over the Ice bergs I fell down a crack in the Ice but ascended without much injury /.../ at 4 PM got under weigh / run down to Ragged [read 'Rugged'] Isl^d harbour / at 1/2 past 7 came too

in 6 fath^s / good bottom / grate number of Ice burgs floting along the Isl^d / latter part more moderate & pleasant."¹⁵

"Friday 12th Febay / First part pleasant weather & calm / at low water found we were close to a sunken Rock / hove up & dropt [? or is it drapt?] off / at 5 AM started & walked over to the beaches / at 6 PM returned / found a few seal /...cloudy weather.../ quantity of Ice drifting past us."

"Saturday 13th Feby / First part of 24 hours light snow / wind to S^d / at 6 AM got under weigh [—] / the boate started to look for seal / breeze freshened from N^d / Worked up along shore th[r]ough a grate number of Ice Il^{ds} / at 3 PM the boat returned with a few prim skins & some drift wood / Ends calm."

"Sunday 14th Febuay / Commences with fine pleasant weather / light breeze from NE / midder part calm / landed on Sherriff Cape [!] & took one prime skin / clear pleasant weather / grate quantity of whales asounding / latter part fresh breeze from NE & thick cloudy weather."

"Monday 15th Febuary / First part fresh breeze from NE / thick snow storm / took in flying Jib / put 2 Reef^d mainsail / beating down for Potters Cove / Midder part thick fog breeze from NW / waiting for clear weather / latter prt thick weather as usual." "Tuesday / 16th Feby / This day begins with fresh breeze from WNW and dark cloudy weather / at 4 PM run in & made the Land / found we ware [!] to E^d / proceeded on round King George Isl^d / Middle passing fog squales / wind W^d / latter part fresh breeze from SWByW / thick snow storm / beating down for Potters Cove / so Ends."

"Wednesday 17th Febuary / This day begins with thick snow storm wind from NE / 6 AM cleared away fine pleasant weather / run in / came to in Potters Cove close to Brig / brigs had returned / found no seal / hand [!] Employed getting wood from the shallop on shore & filling water [?] getting ready for Sea &c / Ends calm & pleasant weather."

"Thursday 18th Feby / First part fine pleasant weather & calm / Employed in getting wood repairing windlas &c / bote [or bots?]

went out & tried to catch some fish but did not find any / waiting for a wind / latter part strong breese from W^d with thick fog" [this appears to end entry].¹⁶

"Sch Penguin South Shetland / Lying in Potters Cove King George Isl^d 19 Febuary 1830 / Throughout this day fresh breese from W^d and foggy weather / awaiting for a chance to go to sea / put boat on shore & shot some Port Egmonts."

"Saturday 20th Feby / First part strong breese from W^d with foggy weather / at 7 AM got under weigh in company with the Annawan bound to W^d in search of a new Isl^d [the word, bold and underscored, Left is in otherwise blank left margin of page at this point] / in beating out the harbour the Brig run on a shoal but gott off with out much dammage / midder part light buflin breese with [line pretty much impossible to read] clear of the Ice / latter part the same."¹⁷

"Sunday 21th Febuary / This day begins with cloudy weather / light buflin winds from all points of the compass / working down for King George Straits [that is, Nelson Strait] / midder part the same / latter part heavy squals from NW^d / Capt Palmer came on board & spent the day / Ends with breese from W^d."

"Monday 22th Febuary / This day begins with foggy weather & breese from W^d / beating through King George Straits / Middle part clear weather / hands Employed unbending cables & stowing them away / at 4 AM Heywood Island / hove by Compass SByE Dist by Estimation 3 Leagues from which I take my Departure [that is, logkeeper will now leave land and record position by calculation] / latter part light breese & foggy." [In left margin: "large bergs."¹⁸

"Wednesday 23th Feb / Commences with thick foggy weather / wind from N^d / all sail set to advantage / stearing to W^d / pass'd a number of Ice bergs / Middle part strong breese with light rain / 2 Reef^d sails / Brig a head / latter part wind NW / Latt by Dr [is this Dead Reckoning?] 61.34 / Long By C [?] 61.44 W."

"Wednesday 24th Febu / Commences with cloudy weather / breese from NNW / set all sail / Middle part clear weather with a heavy

head sea / put one reef^d in the M. sail & fasten the flying Jib / latter part passing squales of rain / Latt By Dr 61.58 S / Long By Act 65.21 W" [position hard to read; line much oxidized and fuzzy].

"In search of a new Isl^d / At Sea Bound to Westward / Thursday 25th Febuary 1830 / Commences with small rain & fresh breese from NW / under single Reef sails / Brig off to windward / at 3 AM passed a chain of Ice Islands, frequently falling to pieces making a noise like dist^t thunder / Middle part fresh gales / double Reef^d the sails / heavy sea heaving from the W^d / latter part more moderate / turned out Reefs / Latt By Act 62.20 S / Long by Dr 69.19 W." [Apparently inserted at end (on next line): "Cours WSW with 3 pt co" — fuzzy and doubtful; but seems jargon, in any case.]

"Friday 26th Febuy / First part cloudy weather with small rain / wind from NW / at 4 AM set all drawing sail / middle part cloudy / a large Sea heaving from the WNW / at 5 PM heavy gales from W^d / ballance [?bullance] / Reef M sail / Reef^d the F Sail & took the bonnet off the Jib / Ends with strong and rainy / Latt By Act 62.33 [hence, their farthest south when at sea on this leg of the exploration] / Long By Dr 73.10" [cannot be totally sure of longitude reading].

"Saturday 27th Febu / This day begins with passing squales of hail and rain / fresh gales from W^d under heavy seas / at 6 PM moderated / set all sail / midder part light breese from NW & pleasant. I went on board of the Brig & spent the afternoon / latter part strong gales from NE & stormy / Reef^d the sails / a large sea from NW / Latt By Act 61.50 S / Long By Dr 74.10 W." [There is a line entered below, on space at right end of dateline of 28 Feb that seems likely to belong to 27 Feb: "Cours W By N."]

See previous day: does "Cours W By N" belong here? "Sunday 28th Feb / This day begins with strong gales from the N^d / with light rain / under 2 Reefs [?] sails main sail jib / clear pleasant weather / wind NNW / Brig off the lee bow / latter part heavy gales with passing squales of hail & rain / ballance / Reef^d M Sail / Reef^d the F sail / took the bonnet

off Jib / Latt By Dr 62.12 / Long 72.23" [some words in line indistinct].

"Monday 1th March / This begins with strong [word left out?] from NW with rain & sleet / under close Reef^s / Midder part calm with a heavy sea / at 4 PM a breese sprung up from SSE...latter part heavy gales as usual with passing squales...close Reef^d...61.58 S / Long By ct 81.14 West" [much of this day's entry nearly impossible to read securely].

"At Sea in Company Brig Annawan / 2th March 1830 / First part of this day light winds from S^d and cloudy / Employed in repairing our riging / Midder part strong gales from S.W. with snow & rain squales / set 3 Reef^s [?] / latter part more moderate / made sail / saw a number of Penguins / cours WByN / Latt By Act 60°.28 S / Long By Dr 84.40 W."

"Wednesday 3th March / Commences with cloudy weather & light breese from W^d / all sail set to advantage / in midle part fresh gales from WNW with steady rain / tacked to SW / 2 Reef^d Sails / latter part moderate / set all sail / saw some sea birds / so Ends / Latt By Act 60°.28 S / Long By Dr 87.08 West."

"Thursday 4th March / Commess [?Commen] with heavy gales from WNW with steady rain & sleete / under 3 Reef^d in company with the Brig / saw several fise birds & a piece of kelp / at 8 AM wind changed to NW By W / tacked [word is above line, place of insertion not certain] to SW / middle part the same / latter part passing squales of Sleete / Lat By Act 59.56 / Long By Dr 89.27 W."¹⁹

On 5 March: squalls of fog and sleet; "under Reef / at at 8 AM tacked to NW...Tookin [?one word] the main Sail / I went on board the Brig & spent the afternoon...saw some Kelp & several birds...Latt By Act 60.36 S / Long Chr 88.00."

6 March: At first, "light breese from SW / all drawing sail set to advantage / ...latter part fresh breese from SW with passing of rain / took in flying Jib & put in single sail ..." [from here, the bottom lines of the page are impossible to make out clearly; there are references to sea birds and, unhappily, also possibly to the "fise birds" referred to above].

"Bound to Westward in search of land / 7th March 1830 / Commences with strong breese

from SW with passing squales of rain / under single Reef^d / Brig off to windward / Saw a grate number of Penguins & several pieces of Kelp...Latt By obs [?] 58.38 / Long By Act 91.25 W."

"Monday 8 March / This day begins with fresh breese from NW & squally weather / all drawing sail set to advantage / at 4 AM wind & sea increasing / took in flying Jib & 2 / Reef^d in the main Sail / .../ saw kelp[,] penguins and sea birds / .../ Brig astern / Lat By Act 59.03 S / Long By [—] 93.23 W."

Tough reading but it appears to be: "Tuesday 9 March / This day begins with heavy gales of rain, sleete[,] snow & hail / 3 Reef^d M Sail / Reef^d F Sail & took bonnet off the Jib / at 3 AM wind hauled to SW / wore ship to WNW / Middle part heavy gales with passing squales of hail & rain & bad sea...latter part more moderate...latt by Obs 58.53 S / Long By Act 94.22 W."

Wednesday 10 March / First part fresh breese from WSW and clear weather / under 2 Reef^d / 4 AM set all sail...Captⁿ Palmer came on board & spend the day / shot several birds, saw Penguins & Kelp.../ under sail steering on around to W^d / Latt By [—] 59.[—] S / Long By Chron^t 93.30 W." [Reading some of this is guesswork.]

Thursday 11 March [nothing significant]: "Latt By Act 58.18 S / Long By Dr 95.72 West." "At Sea in Company Brig Annawan 12th March 1830 / This day begins with moderate breese from WNW & passing clouds / all drawing sail set to advantage / at 10 AM thick rain weather wind & sea increasing / took in flying Jib & put in 2 Reef^d / Middle part the same / Saw several pieces of Kelp / 6 PM / Strong gales / ballance / Reef^d M. Sail / Reef^d F Sail / took bonnet of Jib / latter part thick rain / Latt By Dr 58.11 S / Long By Act 96.54 W."

"Saturday 13th March / First part strong gales from NNW / under snug Reef^d with steady rain / at 4 AM wind / hauled to SW with heavy squales of wind rain & hail / wore ship to WNW / Middle & latter heavy gales / hove to / Brig off to windward / verry heavy sea / saw number of birds / Latt By Act 58.35 /

Long 97.[—] W." The next day was no better: "Sunday 14th March / First part strong gales from SW By W with passing squales of wind hail rain & snow / Lying to under Reef^d F sail 7 head [?] of Jib / Middle part the same / at 2 PM wore ship SSW / Ends with strong gales & passing squales / Saw Penguins & Kelp / Latt By Act 57.48 S / Long By Act 99.20 W."

Although the fore-part of 15 March was "more moderate," by midday, "heavy gales with squales of rain & snow" returned; "several of the crew off duty occasioned by steady wet weather we have experienced for last ten days." Wet alone was hardly the word for it! "Saw some Kelp / Latt By Act 57.41 S / Long By Act 99°.27 W."

The entry for "Tuesday 16th March" offers little that is new: "strong gales from WNW with sleete gales still increasing"; the entry ends on the following page, with the unrelated note at top of the page: "In Search of a New Isl^d Said to be near this." By mid-day, the storm had mitigated somewhat; they "Saw Penguins & other sea birds...Latt By Obs 59°06 S / Long By Act 101.10 West."

Wednesday, 17 March was calmer; they "Saw a number of Birds / Latt By Obs 59°.48' / Long By Act 102°.32' West." "Thursday 18th March / First part fresh breese from SW with clear weather / all drawing sail set to advantage / Stearing WNW / at 8 AM calm / took in sail, went on board the Brig / at 4 PM returned / shot several birds... / at 6 PM heavy gales / hove too under Reef^d F Sail / Ends with verry heavy gale with passing squales short heavy sea / Lat By Dr 58°.38 S / Long By Chrmt^r 102°.26 W." [Worse was to come.]

"Friday 19th March / Commences with heavy gales & squally from SSE / verry rough ugly sea / lying to under Reef^d F. Sail / at 12 midnight [!] a sea which stove our boat bulwarks & knocked cabose & heaved to the leward &c / Midder part moderate with squales of snow / Employed in repairing damages & lashing the stoven boat / at 6 PM hove to under Reef^d F Sail for the knight in copany [!] with Brig / wind SW / So Ends this day / Latt By Obs [?] 58°.01' S / Long By Act 103.02[?] W."

On 20 March, there were fresh gales, heavy

squalls of wind, hail and snow — ending with "light winds & pleasant weather." [I make out position to be 58.09 S, 96.[—] W.]²⁰

On 21 March, still "In Search of New Isl^d / At Sea in company Brig Annawan...Latt by Act 58.11 S / Long By Chro^{tr} 98.05 W." Monday, 22 March started with moderate breeze and pleasant weather but "at 6 PM wind backing to NW with heavy gales & steady rain...Ends blowing heavy with a cross ugle sea / Latt By Obs [?] 58.08 S / Long By Act 96.00." Tuesday, 23 March, another stormy day, ended "Latt By Act 57.30 S / Long By Act 95.20 W."

On Wednesday, 24 March, their course became northward, under cloudy weather with frequent squalls of rain. "Saw a number of black [?] fish & porpoises / Latt By Act 56.48 / Long by Obs 96.[?]." And the following day, with "cloudy weather & passing squales of rain," they were "stearing north under all possible sail in company with Brig / saw a number of birds." [The position given seems to be: 54.00 S, 94.36 W.]

Friday, 26 March: stormy, position 51.40 S, 92.00 W. Saturday, 27 March: position, 49.25 S, 89.15 W. Sunday, 28 March: position, 47.52 S, 86.00 W. Monay, 29 March: some passing storms, "saw a number of birds," position: 46.16 S, long. illegible. On Tuesday, 30 March, under full sail, "Capt Palmer came on board & spent the day / Employed in laying platform & to work on the boat...Cours N By E...Latt By Obs 44°.58' S / Long By Act. 81.05 W."

There was nothing of consequence to report on 31 March: position, "Latt Act 42.53 [possibly it has been made '43.53' by penning over] / Long By Act 78.00." On Thursday, "1th April," they sailed steadily, "saw plenty of kelp & birds / Latt By [—] 40°.17' S / Long By Chr^{tr} 75.43 W."

And, on "Friday 2th April / Commences with clear weather pleasant light wind from SSE / all sail set to advantage / at 10 Am saw the Island of Mocha / bearing NE Dist 10 Leagues / bent the cables & got the Anchors over the bows / middle part same / Standing in for Isl^d / at 4 [?] PM came up & spoke Ship Cincinatus of N York 6 months out with a whale along side & 300 bbs [barrels?] of oil /

Ship [the *Annawan* or another ship?] in sight to windward / latter part fresh wind NNW with rain / Lying by under short sail for Knight / Latt By Obs 38°.30 S" [no long. given.]

"Saturday 3th April / Commences with light buflin winds from N^d with thick fog & rain / lying by to E^d of Isl^d in 16 fathom water / at 11 AM wind came in SW with clear pleasant weather / Stood in to the Isl^d & came to Anchor in 10 fathom abreast of watering place, in Company with Brig / went on shore & shot some birds, got some grain [so seems, even though 'greens' might be more appropriate] / horses & hogs are verry scarce / we found 14 Spaniards here sealing the Keys / they had taken 2000 skins & 400 Ambers of oil / they in formed [two words here] us there were plenty Seal on the Keys / So Ends this day." [One wonders what the landfall meant for James Eights!]²¹

Two more entries end the saga of the *Penguin* here. Not only have *Penguin* and *Annawan* reached a parting point but the *Penguin* log becomes, for a time, nearly impossible to read.

On Sunday, "Lying to Anchor off the Isl^d Mocha 4th April 1830 / First part clear pleasant weather / light airs from NW / 5 AM the boats went around & look^d at Keys / 12 noon returned / Saw plenty Seal / to rough to land, took two boats & crew on board from the Brig / M^r Willcox & the stoven boat went on board the Brig to proceed to Isl^d St Marys / at 4 PM Parted Company / Ends with breese N."

"Monday 5th April / This day begins with light breese from NNE with passing clouds / 6 AM got under weigh / Stood around the Keys to rough to Land / Shorten sail & lay By for Knight / middle & latter part the same with large seas roling in from W^d / Saw two ships in the offing."

James Eights's own story becomes even more complicated than the printed record has heretofore intimated. The final history of the cruises of the *Annawan* and the *Seraph* will be told later. That history has rather little to do with James Eights, it turns out, even though at this point one may assume he and the *Annawan* were still together. Commentators who have covered the history of this expedition have assumed that they remained together until the

return of the *Annawan* in 1831. The outcome was decidedly different.

My task now turns to rounding out Eights's Antarctic experience.

It becomes evident that James Eights did a certain amount of collecting (mainly shells, it would seem) on the Chilean coast. That entire episode, very poorly understood indeed, will be recounted in later chapters on technical results of his Antarctic journey. Meanwhile, by means of the log of the *Penguin*, having taken the reader on an orienting and rather bare-bones tour into the fringes of the Antarctic, I now return to a reconstruction of what can be gleaned from Eights and others as to what, in fact, an observant naturalist may have seen there. My sources are primarily of three sorts. One is a delayed essay by Jeremiah N. Reynolds, perhaps part of his proposed work on the expedition that never got beyond a few newspaper notices.

Part two consists of Eights's own all too short account in "Remarks on the New South Shetland Islands" that accompanied his taxonomic study of a new species of crustacean, *Brouguiartia trilobitoides* (1833). The third part is made up of excerpts from more or less contemporary travelers in the Antarctic (with an emphasis upon natural history), who may be taken to have seen pretty much what Eights and his compatriots saw.²²

JEREMIAH N. REYNOLDS IN THE ANTARCTIC

First, let us have pertinent extracts of Reynolds's account, entitled "Leaves from an unpublished journal." Published in 1838, we are told that it was written "a few years since" during a cruise "to the South Seas." It was held to be "descriptive of the first arrival among the icy regions of the Antartick."

"The nineteenth [of January] was the first day that reminded us of the high latitudes upon which we were entering. We now found ourselves, by observation, fifty-nine and a half degrees south of the equator. Here the wind, changing to the south-west, brought with it a chilling and piercing freshness, which convinced us that, as it swept from the antartick, it

had lingered not a little among the mighty floating crystals which lift their glittering cones to the regions surrounding the pole. [Maybe this is poetic metaphor; maybe, however, he really believed that the winds off the continent were not already cold.] Our vessels now glided on with greater rapidity; storms of snow and sleet gathered thicker around us, and increased vigilance became necessary to prevent parting company. Our feelings grew more and more excited with every plunge of our bark; and we loved to feel the elastick bound she gave on the back of every roaring and hissing billow, inas-much as each one bore her onward to regions, to us, at least, unknown. The temperature of the air had gradually fallen to forty degrees, and that of the water to thirty-eight degrees.

"On the twentieth, being satisfied, from our reckoning, that we were in the neighbourhood of the north-east extremity of the Shetland Isles, we maintained an unceasing watch for land. The fog was dense, and rested on the surface of the water, so that our prospect was very circumscribed, and it became necessary to arrange our men so as to keep perpetual guard against the ice-hummocks which were occasionally seen floating near us, and whence we augured the vicinity of some of those immense, towering islands of ice, which impart such grandeur to these regions, and lend such a perilous interest to polar voyages....As the vapour lifted gradually from the south, we were struck by the appearance of a white, lustrous spot, which expanded to a circle upon the horizon.... We were soon satisfied that this was the *blink* of a number of grounded icebergs, of vast magnitude, and with summits wrapped in snow. Beyond them rose, in still loftier spires of rock and ice, the north-east point of Barrow's Island; nor was it possible to trace the termination of these eminences, so nearly did they resemble the white, fleecy clouds, by which they were enveloped. The air, meanwhile, became so light, that the movement of the vessels was scarcely perceptible, as we passed slowly under the lee of the island and icebergs.²³

"The whole of Barrow's Island, which forms the north-east extremity of the Shetland group, gradually broke upon us, as the mist passed

lightly away. We were about two leagues from the land, and, as there was not wind enough to enable us to command the direction of the vessels, we put off in boats for the shore. The savage and cheerless aspect of the coast gave birth to more thrilling emotions in our minds, as we drew near it, than the most beautiful meadows and shaded lawns could have imparted. Additional interest was imparted to this domain of solitude and desolation, from the absence of vegetation, as well as of every animated being, save the sea-gull, which sent forth its melancholy shriek from its wild perch among the cliffs, thus adding to the dreariness of the scene.

"As the vapour continued to pass away, a clear, cold, yellow brilliancy, glittered along the sea, and the sun came forth in a flood of dazzling splendour, which was reflected and multiplied from a thousand gleaming pinnacles of ice and snow....We had long panted to behold the realms of snow and 'thick-ribbed ice,' and now, for the first time, were under the shadow, and inhaling the cold breath of the polar icebergs. They were before and around, realizing all we had ever dreamed of their fearful grandeur and sublimity. In the afternoon, a deep calm, saving the light ripple occasioned by the tides, had settled upon the ocean. At this time the huge hummocks were floating by, under every conceivable variety of figure, and white and spotless as the purest alabaster."

A "shoal of whales" attracted their attention. "An old *finbacker* rose directly under the bows of the brig, and heaved her for some distance in the water, as if determined to test the weight and prowess of the new intruder...."

"The rookery penguins next attracted our notice. They gathered and flitted about the vessel in flocks that could not be numbered. Portions of the shore were literally covered with this bird. In the water, their movements are rather those of a fish than of any species of winged creatures; they are continually plunging and emerging like a shoal of porpoises before a storm, and are more than half the time beneath the surface. As we drew near the island, its shore seemed singularly bold and abrupt, alternately presenting formations of rock and bodies of unbroken ice. Among the many exciting

spectacles we witnessed, was the falling asunder of an immense iceberg, which parted like a rent mountain, before the warmth of a wind bearing more of summer on its wings than any we had experienced here before, and shot crashing into the ocean, with a sound to which none on earth may be compared.

"But one spot where we could land from the boats was attainable, and here we succeeded in capturing a heavy sea-elephant. 'The male of this species has a cartilaginous substance projecting from the nose, six or seven inches in length, and from this peculiarity it derives its name, as its purpose seems to be similar to that of an elephant's proboscis.' [The author of this quotation is not identified.] Sometimes the male is more than twenty feet in length, and measures more than two fathoms about the body; while the female is never half that size, and bears a resemblance to the hair-seal. Between their movements in the sea and on shore, a striking contrast is observable — the former being sluggish and ungraceful, while the latter are quick, sagacious and elastick [surely, he has reversed these?]. The sea-elephant rarely runs, or turns to battle. Herein he is unlike the fur-seal. But when the club is lifted above his head, or the spear pointed at this heart, he merely raises his weeping eyes with a look of supplication to his murderer, and awaits the deadly blow with the resignation of a martyr. A light breeze began to crisp the surface of the water, as we returned to the vessels. We were consequently enabled to bear away to the westward, under easy sail. The night was uncommonly thick, so that, notwithstanding all our efforts to prevent it, we parted company with the Penguin, and did not see her again until the afternoon of the following day.

"After rejoining our consort, we hove-to, in view of a cluster of rocks, bearing south-west from Barrow's Island. To approach near them with the vessels, would, however, have been hazardous; we accordingly determined to reconnoitre them in our boats. These crags are called the Seal Rocks. They constitute a group about four miles in circumference, and appear to be the disintegrated ruins of an island washed away by the heavy and ceaseless action

of an icy sea. Here and there are left rugged and spiral peaks, rising from one to four hundred feet above the tumbling waters, which dashed and foamed through the dark, narrow channels between them. In attempting to navigate one of these contracted passages, we met with a little accident. Our boat, while hurrying down the boiling current with the speed of a race-horse, encountered an opposing eddy, and, rearing perpendicularly from the shock, instantly capsized. We were cast upon a small beach at the foot of one of the rocks, in the struggle to attain which, the utility of a knowledge of swimming was practically illustrated. We landed, during the afternoon, on another small island, bearing east by south from the Seal Rocks, but which has never been laid down or described, on any of the still very unsatisfactory charts of the group. It would not claim any particular notice here, were it not rendered remarkable by a rocky column, soaring, partly perpendicularly, to the height of three hundred and fifty feet, while it does not exceed fifty in width and twenty in thickness. This lofty, natural pillar, might almost be imagined a vast tombstone, towering over the sepulchre of some ocean-god. As night gathered about us, a calm settled upon the ocean and the relaxed sails flapped wearily and heavily against the masts, like the tired pinions of some gigantick bird wheeling slowly and lazily over the waves.²⁴

"During the night, we drifted, by the force of the current, several leagues, and were not a little surprised to find ourselves, as the fog scattered on the morning of the twenty-second, completely hemmed in by icebergs, a portion of them in motion, others aground, looming like mountains around us. Within the very ripple of some of them we must have glided, when a view of their now glistening summits was prevented by the blackness of darkness which hung around us.

"We could not think of leaving Barrow's Island, without a better acquaintance with its position and peculiarities; but, at the same time, it was not deemed safe for the vessels to approach nearer the coast, on account of the masses of ice and crags by which it was surrounded, and which were constantly enveloped

in a mist of spray, from the breakers that surged high up their precipitous sides. We had no recourse but to land from the boats, and they were accordingly lowered for our reception. The trials and hardships of boat excursions, south of latitude sixty degrees, were something with which we had yet to become acquainted...Notwithstanding the eager hurry of our departure, however, we did not forget to take with us a camp-kettle, tinder-box, some muskets and sealing-clubs, and a small supply of provisions. We provided ourselves with these articles as a precautionary measure, seeing that we might possibly be compelled to 'haul,' as the sealers have it, and thus remain absent during the night, though such a necessity did not exactly come within the plan of our excursion. We now took to our oars, and, making the island on the north-east side, distant about three leagues, we laid our course west, and shot rapidly toward the shore. As we pulled along its verge, we found, in a sweep of coast several miles in extent, only two or three places where it was practicable to land; and even at those points we were obliged to leap from the cuddy of the boat, as the lifting sea threw her bows in close contact with some overhanging cliff. The shore, constituted of rock and solid ice, was particularly bold; indeed, so perpendicularly did it rise from the water's edge, that an ascent of the island was utterly impossible, although we wearied ourselves with exertions to accomplish it. We could not even land, without running imminent risk of getting our boat stove against the sharp, shelving crags. But the absorbing consideration was this — that, had we succeeded in reaching some tenable spot, we could not have passed the night there, without danger of being whelmed by the avalanches of snow and ice, which were constantly liable to be detached from the overshadowing peaks on which they reposed.

"While we glided through the water under 'easy oars,' the wind was suddenly down upon us, and a fog like the night of Egypt enveloped us in its dismal veil. The sea began to rise, and the surf thundered against the rocks with added violence. To attempt returning to the vessels, would have been an act of madness; for it

was clear, from the point to which the wind had hauled round, that their captains would but consult their own safety, by putting at once to sea, to avoid the impending masses of ice by which they were environed. We therefore kept as close as possible to the coast, observing narrowly every indentation where shelter might be hoped for, while each moment served to increase the black and threatening aspect of the elements. It was late in the afternoon, when, after a laborious struggle for a distance of more than fifteen miles, we had the good fortune to discover a narrow beach, upon which we were enabled to land. Yet, even here, the ocean broke in white and booming surges, and with a sound like the continual discharge of artillery. The lateness of the hour precluded farther examination, and we prepared to take advantage of this opportunity to obtain safety and rest. For a few moments we rested on our oars, about two hundred yards from the place where we proposed landing, until we had ridden over the huge rollers that were heaving heavily beneath us. Then the words, 'Steady, boys — steady! bows on! bows on! — Stand ready to leap, the instant she touches the shore!' and, as our tough blades cut the water, she seemed to bound from billow to billow, like a 'thing of life.' To guide a boat amid the lifting and leap of the surf, is, by no means, an easy undertaking; but, by proper and skilful management, disastrous consequences may usually be avoided. The men should be kept firm and steady on their seats — the oars from entanglement in the waves — and the boat well-poised — directly off and on. The spring is to be made simultaneously with the craft's taking ground; and she is then to be raised at once from the water, and borne to a safe distance up the shore. By these means, we all reached the narrow beach, with no other damage than complete immersion; but wet, cold and comfortless — what were we to do for fuel and furnace! That this desolate island, in whose icy furrows no vegetation ever sprang, must be our abode for the night, was, of course, a settled question; the necessity was unavoidable....Yet, how often is man troubled with the thought of evils he is not destined to experience! He fails to remember, as he ought, that the

arm of the Creator is ever about him...On the present occasion...this protecting care...was apparent. The last boat had been lifted from the surf, and the desolateness of our situation and prospects was beginning to weigh heavily on our hearts, when we descried, at a short distance on the same beach, a small rookery of sea-elephants, thrusting their heads upward with a fierce expression of defiance, as if determined to maintain their exclusive right to the dreary and solitary spot they had chosen for an abode.

"But what place is exempt, what creature safe, from the intrusion of man?...In this instance, instigated by that necessity which admits neither question nor delay, we prepared to attack the rookery. It is almost needless to add...that the issue was, the capture of six of the animals. Our success relieved us of all apprehensions on the score of fuel, as the blubber of the sea-elephant will kindle and support an admirable fire; while his tongue constitutes an excellent and luxurious article of food. An expression of gratitude and delight now seemed to beam from every countenance, for our wants being in a great measure removed, the novelty of our situation could not fail to awaken feelings of pleasure as intense and absorbing as they were peculiar. A day or two, it was true, might reduce us to our last biscuit; but on this it was not the disposition of sailors to speculate.

"But little labour was required in making our preparations for the night. The wandering Arab, when overtaken by darkness on the desert, could not in less time pitch his tent than we occupied in reversing our boats on the frozen snow and sand, and extending the dripping canvass which was to be our bed. As the night began to lower around us, the thickening clouds added tenfold to its darkness, and everything was prophetick of a coming tempest. Our blubber fire had been kindled on a platform of stones, and, as we clustered about it, with faces blackening in the dense oleaginous smoke it emitted, we might readily have been taken for a group of northern Esquimaux, or their counterparts, the natives of Terra del Fuego, who inhabit the opposite extremity of our continent.

"With the approach of morning it began to

blow a strong gale, which continued unintermittingly through the day, flinging the surf so angrily and heavily in, that to launch our boats was out of the question. Nor would such a measure have been in the least avail, had we been able to effect it, as the island was still shrouded in a mist which was as impervious to the eye as the darkness of midnight. In the evening we had again recourse to the shelter of our boats, beneath which, wild and dreary as our situation was, the sailors did not forget on this, the closing night of the week, to crack their jokes and spin their long yarns, and they even said something about home and their 'sweet-hearts and wives.' The fierceness of the storm did not diminish during the hours of darkness. The deep thunder of the waves as they heaved the enormous icebergs from their foundations and scattered them in fragments around; the lurid tartarean glow, caught from our lambent fires, which was reflected from objects around us, threw over our singular encampment a character of wildness and horror, which, heightened as it was by thoughts that would intrude as to the possible duration of our exile, is not to be described or even conceived.

"On the twenty-fourth, intimations of a return of pleasant weather began to dawn upon us. Our anxiety for the safety of the vessels, so intimately connected with our own, was infinitely relieved by these appearances. Filling our camp-kettle with young penguins, and a bird of the gull family called the Port Egmont hen — which had been drawn to our bivouack by the remnants of the slaughtered sea-elephants — it was swung, at an early hour, over our fire of blubber. Having breakfasted, we succeeded, after repeated trials, in shooting the boats once more into their proper element; then bidding, as we imagined, a last farewell to our rude harbour, which we distinguished by the title of Rodman's Cove, in remembrance of our much esteemed friend, Benjamin Rodman, Esq., of New-Bedford — we bore away on our blind pilgrimage in search of the vessels. Urging our course as rapidly as we might, we plunged on league after league from the shore: but still the vast circuit of the horizon unveiled nothing to our straining eyes but sky, ocean, clouds and

glittering pyramids. At length, satisfied that our vessels had not returned to the island, we found ourselves under the necessity of again seeking, though with much reluctance, our former shelter. As the day was not very far advanced, we sent two of the boats on shore, and proceeded to examine the western point of the island until our direction was clearly south-east. Upon this part of the coast is the only indentation that deserves the name of bay. It opened upon us with a degree of imposing grandeur, of which those who have never visited these regions of wild sublimity, would find it difficult to conceive. This inlet, in honour of the late secretary of the navy, we named Southard's Bay; not, however, with any reference to his public character and services, for of these he has better and more durable monuments, but simply as an evidence of friendship and regard.²⁵

"A firm, unbroken body of ice seemed here to constitute the coast for more than six miles. It rose perpendicularly from the water's edge, and, extending back, appeared to form a material part of the island. This vast glittering collection had probably been accumulating for centuries. The falling and drifting snow and sleet, congealing year after year upon the old formation, had not only supplied the portion dissolved by the short and partial summers, but added annually to the extent and picturesque appearance of this huge mass of crystallization. After coasting the base of several icebergs and making our way through the field-ice floating around us, we reached the neighbourhood of a long and dangerous reef which partly obstructs the channel between Barrow and Clarence Isle, being the extreme attainable point of the former in this direction. The dashing of the heavy swell upon the breakers, as it poured from the south, heaved in vast quantities of field-ice. As they plunged forward upon other floes in advance, the whole body was broken into atoms, and a mist, like the smoke from the crater of a volcano, was cast to the clouds from an area of many miles. In addition to this, let the imagination of the reader picture the savage features of the shore, whence the overtowering cliffs of ice are not unfrequently separated from the main

body by the undermining rush of the billows; let him conceive the plunge of the disparted ruin; the thundering crash of its collision with the ocean; the vortex of foam and spray which mark where it fell; and even then, be his fancy ever so vivid, he will fail to realize the sublime realities of the Antarctic.²⁶

"To progress farther being impossible, we leaned for a season on our oars, gazing in mute admiration on the wonders around us — only moving occasionally and slightly, to avoid the iron grasp of the closing ice. In the evening we retraced our course to the old place of encampment, where we joined some of the party who had preceded us to the spot, and had, moreover, been fortunate enough to provide fuel for the night, by killing another sea-elephant of large size.

"As yet, we had discovered no part of the coast where we could ascend to the summit of the island; and as the 'golden set' the sun was about to make, promised fine weather on the morrow, it was probable that we should have no opportunity, after the present evening, of making farther trials. We, therefore, determined, as an hour or two of daylight yet remained, to make a hasty search for some practicable acclivity.

"The altitude of the shore land at this spot, seemed to be about one thousand feet, rising toward the interior to a much greater elevation. The only point we could find by which an ascent could be attempted with any feasible prospect of success, was a slight ravine, into which the snow had drifted nearly to the top of the rocks. So slippery and difficult to impress, had the congealed accumulations which blocked up the defile become, that we were compelled to proceed slowly, and with caution — no certain foothold being attainable except by making indentations in the snowy mass with the heel or toe of the shoe.

"On gaining the first eminence, we found our situation to be one of no little danger. The valley up which we had toiled, avoiding the center of the island, ran obliquely with the coast, and, on reaching the summit, we found ourselves hanging over the terrific front of a frowning precipice. The ridge on which we

stood could not exceed twenty-four inches in breadth. Gravel and loose stones constituted the soil, which seemed each moment as if about to crumble beneath our feet, and hurl us from our precarious position a thousand feet into the yawning gulf below. As we leaped forward, a part of the loose soil separated from the rest, and actually shot into the sea at the very instant we had quitted it! A safe foothold was, however, soon obtained, and, after surmounting two other peaks, which rose one above another, we at length stood on what was evidently the loftiest point of the island. ...²⁷

"The sun, at this time within an hour of setting, was sinking in a clear horizon, and the evening was precisely such as might be naturally desired for the enjoyment of a scene like that before us. ...

"Long will it be ere that twilight...shall fade from memory. ...

"Never till now had we felt so bitterly the absence of those boon and brave spirits with whom we had hoped, aforetime, to encounter the perils and enjoy the wonders of these seas. Could it be told us where were Jones, and Pinkham, and Long, and Wilson, and Buchanan! Why were they not with us, as well as those noble companions whose names fill an enviable place in the "Naval Register?" They were appointed to a national expedition — they would well have fulfilled a nation's expectations. Why was not the Peacock discernible, standing off the island, awaiting our return? Her bows of iron would have burst a passage through those icy fields, as a boat cleaves her sparkling way through the froth of ocean. But...the rapid approach of night warned us to lose no time in rejoining our comrades in Rodman's Cove. The sun had already dipped in the waters; but he was leaving a glory behind, which promised, in some measure, to atone for his departure. Shooting horizontally along the surface of the waves, and reflected in their passage from myriads of sparkling cones of ice, the last beams of day illuminated, with a more solemn and touching splendour, the dazzling expanse. It was a beautiful sunset, and a sabbath evening. At such a time, in such a temple, devotion is an instinct!

"Our companions we found seated round a small blubber-fire, waiting for us to assist them in making a descent upon a supper of boiled and roast penguins, obtained from a rocky promontory but a short distance from the little beach we occupied. The flesh was quite juicy and tender, and, by unanimous consent, of excellent relish. An alteration had been made as regarded our quarters for the night, by removing the boats to a spot where we could cover them with an embankment of snow to keep out the wind, and lessen the danger of being crushed by falling rocks from the precipice that beetled above us. A portion of the cliff had, indeed, fallen the previous night, and so close to us, that one of the fragments had partially shattered the boat under which we were lying.

"The morning of the twenty-fifth was such as might have been anticipated from the preceding evening. At the first break of day, which, in this latitude and at this season, is perceptible at two o'clock in the morning, we again put to sea in our boats, and made for the eastern side of the island, where we hoped to rejoin the vessels....We swept along with spirit-stirring rapidity for some distance to the eastward, when we suddenly found ourselves again enveloped in a dirty and desolate mist. Assisted by a small compass, we steered immediately for the island, of which, notwithstanding the precipitous aspects of its shore, we could see no trace — not even the faintest outline. We had not proceeded far on our new course, before we found ourselves on the very brink of destruction — about to rush amid sunken ledges and blind breakers, of which we had no intimation until the white foam was leaping and whirling in fearful eddies around the very bows of our frail and plunging skiffs....Immediately shaping our course from the land, we determined to tempt the hazards of the open sea sooner than encounter the perils of such a coast. We had rowed, or rather groped our way, for about a league, when we fortunately ran into a small channel that shot between two rocks, one of which had a shelving base more than two hundred yards in circumference. This we ascended, and forthwith kindled a fire from some pieces of blubber which remained in the boats. The

day was moderately mild, and the sailors, wearied by protracted exertion at the oar, soon lay scattered upon the rock, like so many marine animals come up from their element to sun themselves. ...

"The sudden changes which distinguish these latitudes are truly astonishing. Suddenly the fog that surrounded us would lift and display a view only girdled by the horizon; and again, as quickly, the broad prospect, and even the objects immediately about us, were lost in obscurity. We had ascended and seated ourselves with a spyglass on the loftiest pinnacle of the cliff, from whence nothing was to be descried but the boundless, ice-speckled sea....At length, as day was fading, and hope itself began to tire, we caught a glance of what appeared to be the rising and sinking topsail of a vessel. The suspense and doubts of that moment were indeed intense. It might be the 'blink' of a distant iceberg;...[but it was indeed the *Annawan* and the *Penguin*].

"To describe what followed is almost unnecessary....Leaving the simmering, half-cooked dinner to be devoured by the Maulemucks, Nellys, Gulls, and Mother Carey's chickens, we started in high spirits, and, by nine o'clock the same evening, arrived safely on board. ..." ²⁸

Thus, Jeremiah N. Reynolds.

JAMES EIGHTS, FARTHEST SOUTH

It is now the turn of James Eights, this time a consideration of his first work on the natural history of his Antarctic experience. It appeared in 1833, as a kind of afterthought to his description of what he deemed a new species and genus of crustacean. I have elected to keep the first paragraph of the account with his taxonomic analysis of *Brongiartia trilobitoides*, printed elsewhere.

"After landing at several places [on the Patagonian coast] and spending some days at Staaten-Land, we proceeded to the new South-Shetland islands, which are situated between 61 and 63° of south latitude, and west longitude 54 and 63. They are formed by an extensive cluster of rocks rising abruptly from the ocean, to a considerable height above its surface. Their true

elevation cannot easily be determined, in consequence of the heavy masses of snow which lie over them, concealing them almost entirely from the sight. Some of them however, rear their glistening summits to an altitude of about three thousand feet, and when the heavens are free from clouds, imprint a sharp and well defined outline upon the intense blueness of the sky: they are divided every where by straits and indented by deep bays, or coves, many of which afford to vessels a comfortable shelter from the rude gales to which these high latitudes are so subject. When the winds have ceased to blow and the ocean is at rest, nothing can exceed the beautiful clearness of the atmosphere in these elevated regions. The numerous furrows and ravines which every where impress the snowy acclivity of the hills, are distinctly visible for fifty or sixty miles, and the various sea-fowl, resting upon the slight eminences and brought in strong relief against the sky, oftentimes deceive the experienced eye of the mariner by having their puny dimensions magnified in size to those of the human form.²⁹

"The ocean in the vicinity, as far as the eye has vision, is here and there studded with icebergs, varying in magnitude from a few feet to more than a mile in extent, and not unfrequently rising two hundred feet in the air, presenting every variety of form, from the snug white-washed cottage of the peasant, to the enormous architectural pile, containing either broadly expanded Grecian domes, or having the many lofty and finely attenuated spires of some Gothic structure.

"The sun, even at midsummer, attains but a moderate altitude in these dreary regions, and when its horizontal beams illumine these masses of ice, their numerous angles and indentations catching the light as they move along, exhibit all the beautiful gradations of colour from an emerald green to that of the finest blue. Some of them whose sloping sides will admit of their ascent, are tenanted by large assemblages of Penguins, whose chattering noise may be heard on a still day at an incredible distance over the clear smooth surface of the sea. When the storms rage and the ocean rolls its mountain wave against their slippery sides, the scene is

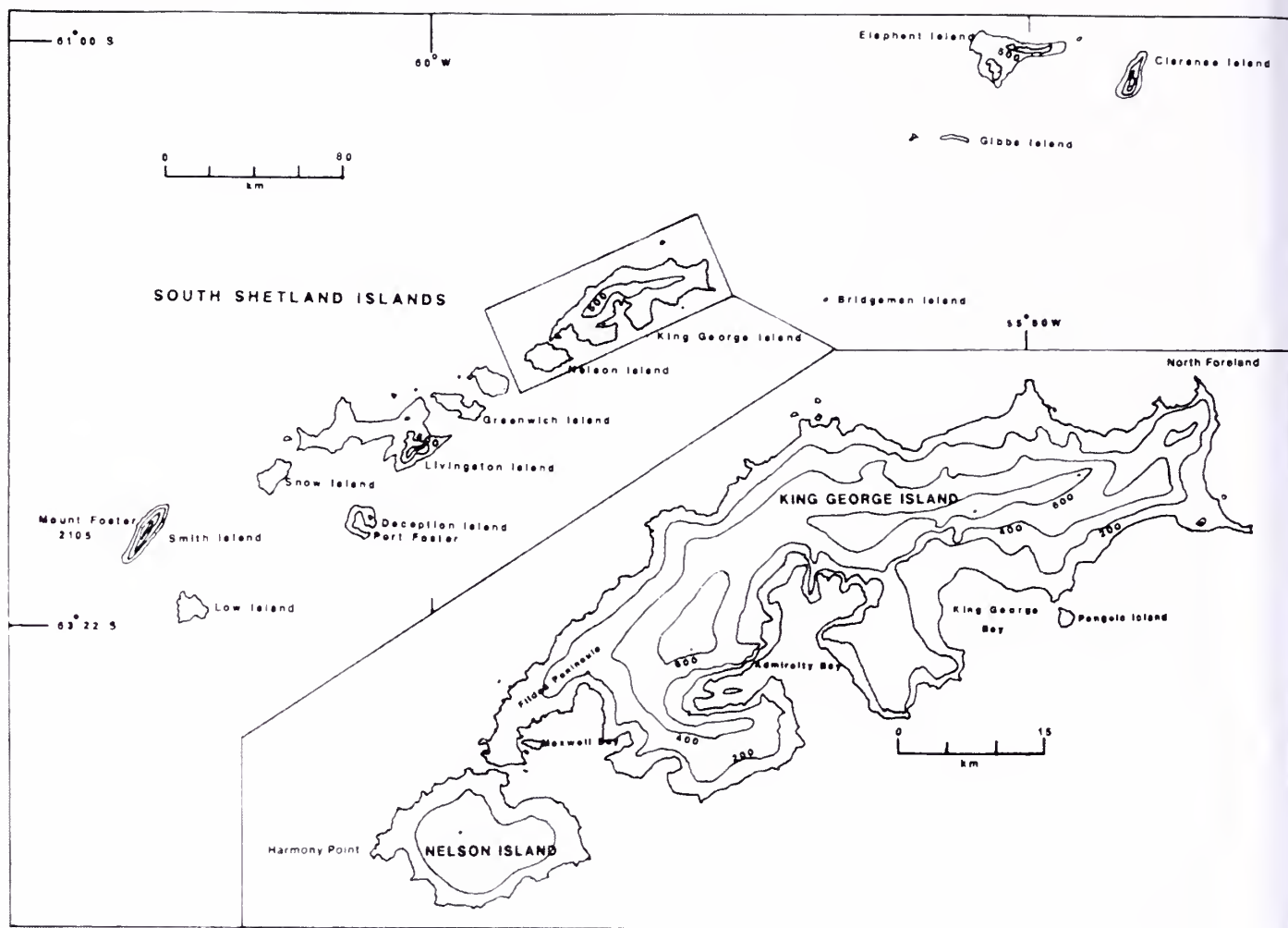


Figure 6.2. The South Shetland Islands, with special reference to King George Island, where most of James Eights Antarctic observations were made. From R.H. Headland, *Chronological List of Antarctic Expeditions and Related Historical Events* (Cambridge University Press, 1989, page 581).

truly sublime. Tall columns of spray shooting up far above their tops, soon become dissipated in clouds of misty white; gradually descending, they envelope the whole mass for a short space of time, giving to it much the appearance of being covered with a veil of silvery gauze. When thus agitated they not unfrequently explode with the noise of thunder, scattering their fragments far and wide over the surrounding surface of the deep. These hills of ice are borne onwards at a considerable rate by the power of the wind and the velocity of the current — when so, they sweep along with a majesty that nothing else can equal.

"The sky too in these latitudes presents a very singular aspect; being, most generally

filled with innumerable clouds, torn into ragged and irregular patches by the wild gales which every where race over the Antarctic seas: the sun as it rises or sets, slowly and obliquely in the southern horizon, sends its rays through the many openings between, tinging them here and there with every variety of hue and colour, from whence they are thrown in mild and beautiful reflections upon the extensive fields of snow which lie piled on the surrounding hills, giving to the whole scene for a greater part of the long summer day, the ever varying effect of a most gorgeous sunset.

"Although many of the scenes about these islands are highly exciting, the effect produced on the mind by their general aspect is cold and

cheerless to an unusual degree, for on their lonely shores the voice of man is seldom heard: the only indication of his ever having trod the soil, is the solitary grave of some poor seaman near the beach, and the only wood that any where meets the eye, are the staves that mark its dimensions; no sound for years disturbs the silence of the scene, save the wild screech of sea-birds as they wing their way in search of their accustomed food — the incessant [!] chattering of the congregated Penguins — the rude blasts, tearing among the icy hills — the sullen roar of the waves, tumbling and dashing along the shores, or the heavy explosions of the large masses of snow falling into the waves beneath, to form the vast ice-bergs which every where drift through the southern ocean.

“The shores of these islands are generally formed by perpendicular cliffs of ice frequently reaching for many miles, and rising from ten feet, to several hundred in height. In many places at their base, the continued action of the water has worn out deep caves with broadly arched roofs, under which the ocean rolls its wave with a subterranean sound that strikes most singularly on the ear, and when sufficiently undermined, extensive portions crack off with an astounding report, creating a tremendous surge in the sea below, which as it rolls over its surface, sweeps every thing before it, from the smallest animal that feeds on its shallow bottom, to those of the greatest bulk. Entire skeletons of the whale, fifty or sixty feet in length, are not unfrequently found in elevated situations along the shores many feet above the high water line, and I know of no other cause capable of producing this effect. Whales are very common in this vicinity, and in calm weather great numbers of them may be seen breaking the surface of the ocean in the many intervals which occur between its numerous ice-bergs, sometimes sending forth volumes of spray, at others, elevating their huge flukes in the air to descend head first, as it were, to fathom the ocean’s depth. When they perish either from accident or some more natural cause, their carcasses in drifting towards the shore are overtaken by these billows and thrown thus far upon the land, here they are left by the retiring

wave, and in a few hours their bones become perfectly denuded by the numberless sea-birds that feed upon the flesh. It is after these waves have subsided that the animal here described [his *Brougniartia*], together with several other equally interesting crustacea may be obtained in considerable numbers.

“The geological features that these islands present in those highly favored situations, where the continuous power of the winds has swept bare the rocks, correspond in a great measure with their desolate and dreary aspect. They are composed principally of vertical columns of basalt, resting upon strata of argillaceous conglomerate; the pillars are united in detached groups, having at their bases sloping banks constructed of materials which are constantly accumulating by fragments from above. These groups rise abruptly from the irregularly elevated plains, over whose surface they are scattered here and there, presenting an appearance to the eye not unlike some old castle crumbling into ruin, and when situated upon the sandstone promontories that occasionally jut out into the sea, they tower aloft in solitary grandeur over its foaming waves; sometimes they may be seen piercing the superincumbent snow, powerfully contrasting their deep murky hues with its spotless purity. Ponds of fresh water are now and then found on the plains, but they do not owe their origin to springs, being formed by the melting of the snow.

“The rocky shores of these islands are formed by bold craggy eminences standing out into the sea at different distances from each other, from whose bases dangerous reefs not unfrequently lie out for several miles in extent, rendering it necessary for navigators to keep a cautious watch, after making any part of this coast: the intervals between these crags are composed of narrow strips of plain, constructed of coarsely angulated fragments of every variety of size, which at some previous period have fallen from the surrounding hills. They slope gradually down to the water terminating in a fine sandy beach: a few rounded pieces of granite are occasionally to be seen lying about, brought unquestionably by the ice-bergs from their parent hills on some far more southern

land, as we saw no rocks of this nature in situ on these islands. In one instance, I obtained a boulder nearly a foot in diameter from one of these floating hills. The action of the waves has produced little or no effect upon the basalt along this coast, as its angles retain all the acuteness of a recent fracture, but when the conglomerate predominates, the mass is generally rounded.³⁰

"The ocean about these shores is generally of great depth, the materials which constitute its bottom are comminuted particles having their origin from the decomposition of the neighbouring rocks. Our stay at these islands occupied a period of four weeks, during which time we observed but one ebb and flow of the tide in twenty-four hours. I know not if this be universal, but have been informed by mariners familiar in these seas, that they have generally found it so; if it should prove to be the case, it is a very singular phenomenon.

"Not a day occurred that snow did not fall or ice make on our decks, and during the time we spent between the latitudes of 60 and 70° south, and 54 & 101 west longitude, which was more than two months, we found the current setting with considerable velocity from the south-west to the north-east. The prevailing winds were also westerly, most commonly from the south-west and north-west.

"The colour of the basalt is generally of a greenish black. The prisms are from four to nine sided, most commonly however of but six, and from three to four feet in diameter; their greatest length in an upright position above the subjacent conglomerate is about eighty feet. Their external surfaces are closely applied to each other, though but slightly united, consequently they are continually falling out by the expansive power of the congealing water among its fissures. When they are exposed to the influence of the atmosphere for any length of time, they are for a small depth of a rusty brown colour, owing no doubt to the iron which they contain becoming partially oxydized: sometimes they are covered by a thin coating of quartz and chalcedony.

"Clusters of these columns are occasionally seen reposing on their side in such a manner as

to exhibit the surfaces of their base distinctly, which is rough and vesicular. When this is the case they are generally bent, forming quite an arch with the horizon. When they approach the conglomerate for ten or twelve feet, they lose their columnar structure and assume the appearance of a dark coloured flinty slate, breaking readily into irregular rhombic fragments: this fine variety in descending, gradually changes to a greenish colour and a much coarser structure, until it passes into a most perfect amygdaloid, the cavities being chiefly filled with quartz, amethyst, and chalcedony. Sometimes an interval of about forty or fifty feet occurs between these columns, which space is occupied by the amorphous variety elevated to some considerable height against them, their edges in this case are not at all changed by the contact.

"The basalt is very tough and hard, the effect produced upon it by the action of the file is very slight: the steel elicits no sparks: the fragments are angular with an imperfect conchoidal fracture: its structure is coarsely granular and uneven, and is composed essentially of hornblende, feldspar, and a greenish substance in grains much resembling epidote: crystals of leucite of a yellow and reddish tinge are disseminated throughout the mass whose fractured surfaces strongly reflect the rays of light to the eye: in some places it sensibly affects the needle, owing no doubt to its iron. Veins of quartz frequently traverse the fine variety, some of them containing beautiful amethysts.

"The basic rock of these islands, as far as I could discover, is the conglomerate which underlies the basalt. It is composed most generally of two or three layers, about five feet in thickness each, resting one on the other and dipping to the south east at an angle of from twelve to twenty degrees. These layers are divided by regular fissures into large rhombic tables, many of which appear to have recently fallen out, and now lie scattered all over the sloping sides of the hills, so that the strata when seen cropping out from beneath the basalt, present a slightly arched row of angular projections of some considerable magnitude and extent.

"These strata are chiefly composed of irreg-

ular and angular fragments of a rock, whose principal ingredient appears to be green earth, arranged with both a granular and slaty structure, united by an argillaceous cement; the whole mass when moistened by the breath giving out a strong odour of that earth. The upper portion of this conglomerate for a few feet, is of a dirty green colour, and appears to be constructed by the passage of the amygdaloid into this rock, the greenish fragments predominating, and they are united to each other principally, by zeolite of a beautiful light red, or orange colour, together with some quartz and chalcedony; a few crystals of lime cause it to effervesce slightly in some places. These minerals seem in a great measure to replace the earthy cement. In descending a few feet further, the green fragments gradually decrease in number and become comparatively rare, the minerals also give place to the cement until the whole mass terminates below in a fine argillaceous substance, with an imperfect slaty structure and a spanish-brown aspect.

"This rock being much softer in its nature than the basalt and more affected by decomposing agents, the number of fragments are consequently greater in proportion, and much more finely pulverised, forming the little soil, which supports some of the scattered and scanty patches of the vegetation of these islands.

"The minerals embraced in this rock are generally confined to its upper part where it unites and passes into the incumbent amygdaloid, many of them are also in common with that rock. They consist chiefly of quartz, crystalline and amorphous, amethyst, chalcedony, cachalong, agate, red jasper, felspar, zeolite, calcareous spar in rhombic crystals, sulphate of barytes, a minute crystal resembling black spinelle, sulphuret of iron and green carbonate of copper.

"The only appearance of an organized remain that I any where saw, was a fragment of carbonized wood inbedded in this conglomerate. It was in a vertical position, about two and a half feet in length and four inches in diameter: its colour is black, exhibiting a fine ligneous structure, the concentric circles are distinctly visible on its superior end, it occasionally gives

sparks with steel, and effervesces slightly in nitric acid.³¹

"There are a number of active volcanoes in the vicinity of these islands, indications of which are daily seen in the pieces of pumice found strewed along the beach. Capt. Weddel saw smoke issuing from the fissures of Bridgeman's island, a few leagues to the N.E. Palmers land, situated one degree south: what little is known of it, which is only a small portion of its northern shore, contains several. Deception island also, one of this group, has boiling springs, and a whitish substance like melted felspar, exudes from some of its fissures.³²

"The rocky fragments on these islands are generally very hard and little liable to the disintegrating influence of the atmosphere, and rarely indeed are they subject to a power capable of agitating them sufficiently to remove even the acuteness of their angles, consequently but a small quantity of soil can any where be found, and when discovered, being destitute of the necessary ingredients that give fatness to the earth elsewhere, it affords but a few scattered patches of vegetation, which appear to struggle hard for the small portion of vitality they enjoy. The *Usnea facitata*, Torrey [Silliman's Journal, vol. 6, page 104. Imperfectly described in consequence of the badness of the specimen (Eights's footnote).], is most common. A species of *Polytrichum* [a moss] resembling the alpinum of Lin.[,] one or two lichens and a fucus found in the sea, along the shores — when you add to these an occasional plant of a small species of *avena*, you complete the botanical catalogue of the islands.³³

"The only vertebral animals [he means mammals] ever observed on these islands are very few in number, and confined to the amphibia carnivora of Cuvier; all being embraced in the genus *Phoca* [not as now understood!]. The *P. leonina*, Lin. (sea elephant) is the largest of the species, sometimes attaining the length of twenty-five feet, and is regularly proportioned. These animals are remarkable for the powerful strength of their jaws. When attacked, and wounded in such a manner as to be unable to reach the sea, in the struggle, either through agony or rage, they not unfre-

quently take up considerable sized stones with their mouth, and break them into a number of fragments between their teeth: sometimes they seize upon the lance, breaking it instantaneously, or else, bending it in such a manner as to render it perfectly useless. The sea leopard is not so large, but is a far more beautiful animal. *P. vitulina*, Lin. (fur-seal). This beautiful little animal was once most numerous, but was almost exterminated by the sealers at the time these islands were first discovered. There is also a fourth species, which I have no recollection of ever seeing the slightest notice of. It is probably not common, as I saw but one; it was standing on the extremities of its fore-feet, (flippers) the head and chest perfectly erect, abdomen curved and resting on the ground, the tail was also in an upright position: the animal in this attitude bore a striking resemblance to the representations we frequently meet with of the 'mermaid,' and I think it was undoubtedly one of the animals of this genus that first gave origin to the fable of the maid of the sea. I regret that I could not obtain a nearer view of this interesting animal. When I approached within one hundred feet, it threw itself flat and made rapidly for the sea: it appeared about twelve or fifteen feet in length, and distinctly more slender in proportion than any of the other species, so much so that the motion of the body when moving seemed perfectly undulating. Some of the seamen had seen them frequently on a former voyage, and mentioned that they were known among sealers by the name of sea-serpent, from this circumstance. Some of the teeth were brought to me which had been picked up on the beach. The crown of the grinders is deeply and singularly five lobed.³⁴

"When these animals resort to the shores for the purpose of breeding or shedding their hair [whether he here refers to the elephant seal alone or to seals in general is not clear] they are in fine condition. During this time they require no food, existing by the absorption of their fatty matter: if killed at this period, you generally find a quantity of small stones in the stomach, swallowed most probably for the purpose of keeping that organ distended and preventing its internal surfaces from adhering to each

other. When the season for returning to the sea arrives, these stones are ejected on the beach, and they proceed in search of their ordinary food, which is chiefly penguins [a gross oversimplification]. A singular character in the habit of these animals is the faculty they possess of shedding tears when in any way molested. The eyes becoming suffused and the large tears chasing each other in quick succession over their wrinkled faces, creates quite a sympathy in the breast of the beholder. Of the Cetacea inhabiting the ocean among these islands, the *Balaena physalis* (fin whale) with a smooth belly, is very numerous: the *B. mysticetus* (right whale) is occasionally seen. The Grampus and Dolphins are quite common, and a species of Porpoise which I had not before seen, occurs in great numbers. From their appearance in the water their colour seemed dark, with a broad, somewhat waved white line, extending from the posterior and inferior part of the head, backward and upward to the dorsal fin: a second and similar one commences on the abdomen immediately below the termination of the first, and ends at the origin of the tail above: these marks are distinctly visible as they glide through the sea. They are called sea skunks by the sailors. I am told they are confined to high southern latitudes.³⁵

"The birds which frequent these islands are much more numerous than any of the other classes of [vertebrated] animals; of penguins there are five species. The *Aptenodytes patagonica*, Gm. [For a further account of the animals and birds here mentioned, I must refer to the four voyages of Capt. B. Morrell, jr. and those of Capt. Edmund Fanning, two popular works recently published in New-York. — Eights's footnote] (king penguin) is the largest and by far the most beautiful of the species, and may be seen in great numbers covering the shores for some considerable extent. They are remarkably clean in their appearance, not a speck of any kind is suffered for a moment to sully the pure whiteness of the principal part of their plumage: their upright position, uniform cleanliness, and beautiful golden yellow cravat, contrasts finely with the dark back-ground by which they are relieved, so that the similitude is

no unapt one, which compares them to a regiment of soldiers immediately after parade. The females lay but one egg on the bare ground, which is rather larger than that of a goose, and of about equal value as an article of food, but differs a little in shape, being more tapering at its smaller end. The egg lies between the feet, the tail being sufficiently long to conceal it effectually from the sight. When approached they move from you with a waddling gait, rolling it along over the smooth surface of the ground, so that person not acquainted with the fact might pass through hundreds of them without discovering it. The *Spheniscus antarcticus*, Shaw. (rookery penguin) is more numerous than any of the other species, assembling together in vast congregations, occupying the smooth strips of plain for a mile or more in extent; passing through them, they barely give you sufficient space, picking at your legs, and keeping up a continual chatter. Their whole appearance as you walk along, brings powerfully to your recollection the story of Gulliver, striding among the Lilliputians. The *Chrysocoma saltator*, C. *Torquata*, C. *catarractes*, Shaw, are occasionally found along the beach, and scattered among the others. These birds swim with great velocity through the sea and may be seen several feet in depth shooting along in every direction, at short intervals rising to its surface, darting out and in again, at the same time, uttering a quick sound very similar to that produced by a single blast on a split quill. *Phalacrocorax graculus*, Shaw. *Sterna hirundo*? Lin. *Diomedea exulans*, Lin. and *fuliginosa*, Lath. *Daption capense* — *antarcticum* — *niveum*, Shaw. *Fulmarus giganteus*, and *antarcticus*, Shaw, are all very common. *Procellaria pelagica*? Lin. This is much smaller than any I observed in other parts of the ocean, and may probably prove a distinct species. *Larus eburneus*? Gmel. *Lestris catarractes*, Tem. are also common. *Chionis Forsteri*, Shaw. (sheath bill.) This is the white pigeon so often mentioned by mariners as inhabiting the islands of the southern ocean, it is easily caught by the hand, and soon becomes domesticated. We kept a number of them several days after leaving these islands, they ran about the decks of the

vessel apparently without any disposition to leave them, feeding from the hand of any individual that offered them food.³⁶

"The mollusca are very few, though unique. An interesting species of *Pholas*; a beautiful *Nucula*, and a fine *Patella*, neither of which I think have been described, comprise all that we saw.³⁷

"The existence of a southern continent within the antarctic circle is, I conceive, a matter of much doubt and uncertainty, but that there are extensive groups, or chains of islands yet unknown, I think we have many indications to prove, and were I to express an opinion, I would say, that our course from the south Shetlands to the southwest, until we reached the 101° of west longitude, was at no great distance along the northern shores of one of those chains. The heavy clouds of mist which encircled us so often, could arise from no other cause than that of the influence of large quantities of snow or ice, on the temperature of the atmosphere: the hills of floating ice we encountered, could not form elsewhere than on the land. The drifting fuci we daily saw, grow only in the vicinity of rocky shores, and the penguins and terns, that were almost at all times about us, from my observation of their habits, I am satisfied, never leave the land at any great distance. During our cruize [!] to the southwest above the 60° of south latitude, we found the current setting continually at a considerable rate towards the northeast, bearing the plants and ice along in its course, some of the latter embracing fragments of a rock, the existence of which, we could discover no where on the islands we visited. When the westerly winds drew well toward the south, we were most generally enveloped in banks of fog, so dense that it was with difficulty we could distinguish objects at the distance of the vessel's length. When Palmer's land becomes properly explored, together with the known islands situated between the longitude of Cape Horn and that of Good Hope, I think they will prove to be the north eastern termination of an extensive chain, passing near where Capt. Cook's progress was arrested by the firm fields of ice in latitude 71°10' s. and west longitude about 105°; had

that skilful navigator succeeded in penetrating this mass of ice, he would unquestionably in a short time have made the land upon which it was formed. Capt. Weddel after passing the icy barrier to the east of the South Shetlands, succeeded in reaching the 74°15' south, (the highest latitude ever attained by man,) and found in crossing this chain and progressing towards the south, that the sea became more free of ice, and the weather almost as mild as summer, evidently proving I think, that the south pole can be nearly approached, without incurring any great degree of hazard in the attempt. But for further information on the practicability of reaching the south pole, I must refer to the judicious remarks of Capt. Edmund Fanning of New-York, contained in his account of several voyages to the southern ocean, with which I perfectly coincide; and will conclude with the regret that the government of the United States, with a population whose daring enterprize has already carried our flag into the remotest corners of the globe, could not be induced to forward an expedition, the expense of which would little exceed that of a vessel doubling Cape Horn. They might thus settle this interesting question, and also determine with certainty the situation, magnitude, and extent of these lands, and by that means open a new source of revenue to the country in the oil and fur animals which must necessarily exist in these high southern regions."³⁸

With the above essay, we can think of James Eights as nearly done with the Antarctic. His brief stay on the Pacific coast of Chile will be treated in an upcoming chapter. It is perhaps unfair to neglect Benjamin Pendleton's brig *Seraph*, which left Staten Island 22 January 1830 for a month of sealing in the South Shetlands, then took a swing westward, south of 60°, west to 101°, in search of mythical islands. Pendleton left reports of nothing of interest to us, although he rather insisted on the primacy of his efforts, if not of results, in memorializing Congress, hoping for recompense for losses. In fact, he was prone to claim that his part in landing Reynolds and Watson on the Chilean coast for an incursion into usually unfriendly Araucanian Indian territory was of more consequence to national renown than anything accomplished in

Antarctica. Nowhere, either in his and Fanning's memorials to Congress or in his letter reproduced in Edmund Fanning's *Voyages* (1833), did Pendleton acknowledge the presence of Eights or allude to his work. This was due no doubt to the fact that Eights was on the *Annawan* alone during his Antarctic journey. By the time Pendleton and Nat Palmer began to explore the Chilean coast, Eights had parted company with the expedition and returned home. Obviously, Eights's 1833 paper was not available to Fanning for the first edition of his *Voyages* (he quoted the entire natural history section in the 1838 [2nd] edition).³⁹

Eights's memories of Antarctic Seas were seldom shared with his readers. A notable exception was an essay published in 1846, "On the Icebergs of the Ant-arctic Sea." A transcription, with a few elaborations removed, follows.

"To the voyager...there is perhaps no scene in all his wide wanderings, that so powerfully arrests his attention, and calls forth those feelings of admiration in so sublime a degree as that produced by his earliest prospect of the polar seas. In approaching these dreary and uninhabitable regions, the chilling influences of the land are sensibly felt, long ere it becomes visible; but when the curtain of mist that enshrouds its glories, discloses the sublime spectacle, all the feebler sensations of the mind are at once lost in the all-absorbing sentiment of delight which pervades his breast.

"The vast masses of snow and ice that lie piled over the uneven superficies of the land, and the numerous icebergs that drift through the Southern ocean, and are every where strewn along its surface, are, in a peculiar manner, adapted to create feelings of awe and admiration in the bosom of the beholder, not alone from the majesty of the size, but likewise, by the variety of the forms and everchanging hues that they assume, throughout the different hours of the long-continued light in these high latitudes.

"From the shapeless mass of comparatively small dimensions, to that of some miles in extent, these icebergs are not unfrequently seen, elevated to the height of between two and three hundred feet above the ocean's level; they are

then swept along with an inconceivable grandeur, borne by the powerful currents, and aided by the almost ceaseless winds, they move steadily onward until they finally become dissolved, and entirely disappear, in the warmer regions much farther to the north.

"It is almost impossible to conceive anything more delicately beautiful than the effect produced by these icebergs, when the sky is free of clouds, and the ocean is at rest; it is then there can be traced, among the numerous angles and indentations by which they are impressed, all those mingling gradations of color, from the faintest tinge of emerald green to that of the most intense shades of blue; and when the sky is filled with clouds — which is most generally the case — the scene, though equally as picturesque, exhibits a much severer aspect; these clouds being all over torn into rough and irregular patches, by the powerful winds that here prevail; while the sun, having but a moderate altitude, and almost encircling the heavens but a few degrees above the horizon, pierce with its rays the numerous openings between, and light up both cloud and ice, into a most magnificent glow. These changing hues are again brought to the eye of the spectator, in mild and beautiful reflections, so that, throughout the hours of the long summer day, the entire scene presents the ever-varying aspect of a most gorgeous sunset.

"But when seen amid the turbulence of cloud and storm, the scene become sternly sublime. The dense masses of heavy vapor that deadens the entire face of the heavens, and roll rapidly along its surface, together with the dashing of the wild waves against the icebergs' slippery sides, sometimes sending the spray far beyond their loftiest tops, where, soon becoming dissipated in clouds of silvery mist, it gradually descends and envelopes the distant view as with a soft transparent veil of light. But it is only when, under these circumstances, these masses of ice are seen through the gloomy twilight of the midnight hours, that they assume a strangely terrific aspect; their huge forms then loom in the hazy atmosphere that surrounds them, and fall upon the vision shadowy and indistinct, like fragmentary spectres of a disrup-

tured world.

"These icebergs at all times derive their origin from the land; being merely detached fragments from the huge glaciers which everywhere fill the numerous valleys, and cover the hills from the water's edge upward, until they attain their greatest eminence. These glaciers are all formed from the accumulating snows of ages, this being almost the only form that moisture ever assumes in falling in these elevated regions; scarcely a day occurred while we were in the vicinity of these southern lands — even though at mid-summer — that snows did not descend, and water congeal into ice upon our decks.

"The powerful winds which prevail in these high latitudes, acting with their usual energy upon such portions of the land as are freely exposed to their sweeping influence, have a direct tendency in the first instance, to drift up and fill the valleys and other depressions with snow, until they become almost even with the adjoining hills; it is then, by the pressure of the enormous weight, that it is speedily condensed into solid ice. During this process it is, that those numerous shrinkage fissures are also produced, that are to be seen traversing the glaciers in almost every possible direction.

"In passing along the surfaces of these glaciers, the journey oft-times becomes one of extreme peril to the incautious traveller, from the circumstance that the fissures are not unfrequently crusted over by a thin and fragile covering of snow, which readily yields to his footstep, and suddenly precipitates him some hundreds of feet below. [Footnote: This, but to an unimportant depth, occurred to one of the officers of our ship, and it was only after a considerable time had elapsed, and some exertion on our part, that he was ultimately relieved.] It is in this manner that animals sometimes perish, and when at length discovered, firmly imbedded in the drifting ice, give rise to no small degree of surprise and varied speculation.

"The carcasses of penguins and seals, which in the greatest profusion inhabit the southern lands, were, in several instances, observed in such positions; and it is in this way that the remains of animals are frequently conveyed to

distant shores, and deposited in climes in every way uncongenial to their species.

"From the constantly increasing weight of accumulating snows above, these glaciers are silently and almost imperceptibly encroaching on the sea, so as, in many places, to project far over its foaming waves. Sometimes they are seen gradually to approach from opposite directions, and eventually to bridge over some of the narrower straits that in various places divide the land; in most instance, however, they are observed to encompass the land by a series of precipitous cliffs, which have an extent for miles together, presenting a naked wall or barrier of ice to the sea. Huge masses of these, particularly during the season of summer, are continually breaking off with an astounding report, and after falling into the waves beneath are carried onward, and constitute the vast icebergs of the Southern ocean.

"These icebergs, when first detached from the land, are of a rudely tabular form, but by the continued action of the oceanic waters about their bases, penetrating into their fissures, and wearing them away in such a manner as to destroy their equilibrium, they suddenly topple over, and then exhibit all those strange and imitative forms which have so often been described in most glowing terms, by the many voyagers whose good or evil fortunes have hitherto led within their influence.

"Embraced within these drifting icebergs, rocky fragments, varying greatly in size, are not unusually to be seen, sometimes rounded into the boulder form, but for the most part angular, and so arranged as to present a dark striped, or partially stratified appearance, strikingly visible from the contrast of their darker hues, with those of the lighter tints of the ice in which they are incased. The origin of these last is extremely obvious, and admit of a simple explanation. In many places, isolated masses of the rock that constitute the land, are observed to penetrate and protrude far above the general level of the surrounding snows; portions of these are almost continually falling, from the expansive power of the congealing water among their fissures; these fragments are thrown upon the indurated surface of the

snows, and are then slidden to some considerable distance from whence they were derived; upon these the falling snows soon accumulate to a sufficient depth to retain them in their places, until they become firmly embraced within the mass. When portions of these glaciers are detached, and tumble into the sea, icebergs bearing rocky fragments are then produced. These fragments, like the animal remains, are frequently borne along, and deposited in regions far remote from the parent rock, from whence they were detached.

"The largest drifting iceberg that we saw, during a period of three months in their vicinity, was estimated about two miles in extent, and elevated between two and three hundred feet in the air. Should we take into consideration the specific gravity of ice, which allows about eight parts beneath, to one above the sea, we will be able to form some conception of the vast magnitude of these floating mountains. One of these larger ones was seen drifting along at the rate of two and a half knots an hour, at which speed, on approaching Cornwallis island — one of the South Shetland group — it suddenly became arrested in its course, the anterior portion grounding, and remaining attached, while that which followed, submitting to the powerful impulse of the current, was swept around, describing a complete semicircle ere it again became free. Should this part of the ocean's bottom, at any future time, be elevated into dry land by the active energies so peculiar to volcanic regions, the impressions made by this iceberg would furnish to the world a highly interesting subject for geological speculation. When agitated by the waves, these mountains of ice are frequently rent assunder [!] with terrific explosion, scattering their fragments far and wide over the surrounding surface of the deep. In fine weather too, they are not unusually seen covered with penguins, whose chattering noises is often heard at an incredible distance over the silent sea."⁴⁰

AND AS OTHERS SAW IT

A few excerpts drawn from both predecessors and contemporaries of James Eights in the

vicinity of the South Shetlands will bring this long chapter to a close. Not only is there justice in this, giving credit where credit is due (and, as with Eights, overdue); it also adds authenticating observations and points of view.

Chronologically come two accounts associated with a trip made by Warrant Officer Edward Bransfield, R.N., master of William Smith's ship the *Williams*, which reached the South Shetlands in 1820. While there was no official published account, two short narratives came into the hands of the press, one by Adam Young and one by Thomas Maine (or Main) Bone.

First, that of Dr Adam Young (the anonymous article was attributed to someone on H.M.S. *Slaney* — Young's later ship; the author, for this reason, has sometimes been given as "Slaney"). As a monument to editorial error, it was headed "Notice of the voyage of Edward Barnsfield [!], Master of his Majesty's Ship *Andromache*, to New South Shetland." Warrant Officer *Bransfield*, R.N. (d. 1852, aged 67 years) was meant; and he was temporarily in command of the *Williams*. Despite its alleged "vague and diffuse" nature ("a layman's story of a technical expedition"), it has its stirring points. It began: "About a twelvemonth ago, an English merchant brig...made [that is, saw] what they supposed to be land, several degrees to the southward of Cape Horn, and in a situation in which it is positively asserted that no land can exist." Bransfield (called "Barnsfield" here) was chosen to check out the matter and among three volunteers sent with him was Dr. Adam Young, since "it was deemed necessary to send a medical officer." They were a month getting from Valparaiso to within sight of land on 16 January 1820, "having been almost constantly harassed with baffling winds and calms till we arrived in a high southern latitude." Land, to the southeastward, extended as far as the eye could reach. "At a distance, its summits could scarcely be distinguished from the light white clouds which floated on the tops of the mountains" — a view of the landscape now familiar to us. "The whole line of coast appeared high, bold, and rugged; rising abruptly from the sea in perpendicular snowy cliffs,

except here and there where the naked face of a barren black rock shewed itself amongst them." A boat was sent out but could not see a fit place to land; seals and penguins were reported to be the only animate objects seen. On one island, they were enabled to land: "Words can scarcely be found to describe its barrenness and sterility. Only one small spot of land was discovered on which a landing could be effected...every other part of the bay being bounded by the same inaccessible cliffs which we had met with before. We landed on a shingle beach...from which a small stream of fresh-water ran into the sea. Nothing was to be seen but the rugged surface of barren rocks, upon which myriads of sea-fowls had laid their eggs, and which they were then hatching. These birds were so little accustomed to the sight of any other animal, that, so far from being intimidated by our approach, they even disputed our landing, and we were obliged forcibly to open a passage for ourselves through them. They consisted principally of four species of the penguin; with albatrosses, gulls, pintadoes, shags, sea-swallows, and a bird about the size and shape of the common pigeon, and of a milk-white plumage, the only species we met with that was not web-footed. We also fell in with a number of the animals described in Lord Anson's voyage as the sea lion...many of which we killed. Seals were also pretty numerous; but though we walked some distance into the country, we could observe no trace either of inhabitants, or of any terrestrial animal. It would be impossible, indeed, for any but beasts of prey to subsist here, as we met with no sort of vegetation except here and there small patches of stunted grass growing upon the surface of the thick coat of dung which the sea-fowls left in the crevices of the rocks, and a species of moss, which occasionally we met with adhering to the rocks themselves." Because of "the almost constant fogs in which we were enveloped," they were unable to say if they viewed a new continent or merely a group of islands. Prophetically enough, Young foresaw the result of the incursion of merchant seamen into this region of a "very great numbers of whales with which we were daily surrounded; and the multitudes of

the finest fur-seals and sea lions which we met both at sea and on every point of the coast, or adjacent rocky islands, on which we were able to land." "The fur of the former is the finest and longest I have ever seen; and from their having now become scarce in every other part of these seas, and the great demand for them both in Europe and India, they will, I have no doubt, become, as soon as the discovery is made public, a favourite speculation amongst our merchants."⁴¹

The second contribution from the Bransfield survey was made, also anonymously, by Thomas Maine (or Main) Bone, Midshipman, R.N., son of the painter Henry Bone the Elder; he went with Bransfield as a skilled draftsman (and, indeed, a useful early map resulted from his work). His observations on the South Shetlands are valuable, even though he also was uncertain (because of the fog) whether they were viewing a continuous land-mass, or if, perhaps, there were separating straits between the points they saw. Bone goes on at length, supplementing Young.⁴²

Bone was impressed by the swarms of seals ("of great size, full of oil, and with the finest furs"). "In other respects animal existence is limited in variety, though not in the numbers of particular species. The shores are covered with penguins, which even disputed possession with the human visitors. There are gulls, albitrosses [!], and one land bird about the size of a pigeon. The sea-elephant also inhabits these dreary parts, and whales are very numerous, but excessively lean and poor. No fish were caught or seen, and the only conchological products on the shore were the empty shells of limpets." There are references to elephant seals (still ignorant of human affairs at that time) and penguins, many of which were killed to clear a way for the advancing exploratory party. Previous to leaving this island (King George), they were able to make a few forays to the interior. "The swampy land, the lowest of all, was covered with a sort of grass and moss, nourished by the dung of the several oceanic birds; this moss and grass abounds in great quantities, and is all that deserves to be called vegetation. The little rocky ridges, at the foot of the snow, seemed to be the

haunt of the albatrosses; their nests are of small pieces of broken stones scraped together, in which their eggs are deposited. So unused were they to the sight of man, that they would not stir from their nests till forced off with sticks, which they bit with the most savage determination. There was also a large brown bird, with a few white feathers in the upper part of the wing, a sharp bill, and web-footed. It builds a nest of moss, and lays a brownish, spotted egg; this bird is frequently found among the albatrosses. The other marine birds were Cape-pigeons, petterel, and several species of the gull, besides a shag, which has a singular mud nest on the rocks, close to the water. No land animal and no other bird were seen, except a sort of pigeon, which builds in the crevices of rocks with grass from the swamp; these were so tame that they allowed the people to approach and knock them down with sticks, though sufficiently on their guard not to be captured by the hand. Of penguins there were five different kinds, all equally troublesome. What these creatures subsist upon it is difficult to divine, as no fish was seen but the limpet, which came up with the ship's anchor when she weighed. Only a few seals were seen, but they produced a very fine fur. The sea elephants seemed to reign the undisputed monsters of the whole bay."

Some notice was taken of "snow of a reddish tint," which had also been seen in Arctic regions; the color could not have come from the soil, for it was found on the surface of snow that was very thick. References to various penguins and marine mammals characterized their travels as they tried in vain to learn more about the lands in a period of sea-ice and nearly continuous fog. A shag (cormorant) with white breast may be noted, as well as a claim that an entirely white penguin was seen; whether a "sea lion," along with elephant seals and fur seals, is to be credited needs evaluation.⁴³

A final contribution from the same era comes from Richard Sherratt, master of the British sealer *Lady Trowbridge*, wrecked off Cape Melville, King George Island, on Christmas Day, 1820. He recorded: "The first intimation you have of being near South Shetland, is meeting with a great quantity of whales, of the black

kind, and what are called the fin-back; you may thence conclude you are about 150 miles from land. Standing on to the southward, you will meet with innumerable penguins, so many that you would almost conclude the sea was animated....The first sight you have of the land, is at a distance of about 15 leagues, and its appearance is similar to a white cloud...Still standing on, you gain the land, until some parts touch the clouds, the whole being covered with eternal snow, save here and there a hill in the form of a cone or sugar-loaf, which is of a very dark colour, and these spots are generally on the tops of mountains." He describes the precipitate coast line, rocky islets, the awful crashes as ice and snow fall from the precipices. He alleges a kind of coal was found. As for vegetation, he had a poor opinion: "There is not a tree, not a bush, not a shrub, not a flower, in all the islands. There is a little coarse moss here and there, and in Potter's Cove there is a small plot of land with a little grass of a small kind, and very short."

"Animals [meaning land mammals] there are none....

"Birds are plentiful and various. The penguins, which are innumerable, are of three different sorts; namely, the crown penguin, with a red tuft on the head, and beautiful yellow and black plumage; 2d, without the tuft, but of similar plumage; 3d, the black and white one. All of these have a very disagreeable smell. There are also sea-gulls, gannets, Cape hens, and a sort of pigeon, which is the only bird that has not a web-foot; and I think these last must have blown from South America in the heavy north-west gales.

"Fishes are likewise in abundance and variety. The black whale and the fin-back whale are numerous, but I believe there are not any spermaceti whales here, at least I did not see any, or hear of any person who did. However, the grampus, the porpoise, the sea elephant, and the seal, are in vast quantities. There is also a very delicate fish to be caught near the different detached rocks, which I call the black or rock cod, weighing from 4 lbs. to 8 lbs. the only eatable fish taken here. — Shrimps are in abundance, if I may judge by the quantities which

we found in the maws of the penguin and seal, when killed. There are clams on the rocks which are eatable."⁴⁴

So far as qualified scientists are concerned, however, Eights has only to bow in priority to Dr. William Henry Bayley Webster, doctor and surgeon on HMS (sloop or bark) *Chanticleer*, commanded by the unfortunate Captain Henry Foster. Webster's observations in the South Shetlands occurred during a quite happenstance visit to Deception Island in January, February, and March 1829, a year before Eights was in the South Shetlands.

Webster's incomparable pen portrait of Deception Island deserves reading in its entirety, for it far excels in perceptiveness and informational content that of any contemporary or near-contemporary. I am confident that no sea-going scientist of his time did better work than his dissections of the leopard seal and penguin.

To begin: imagine the landscape itself. "A more dreary or more cheerless scene cannot be imagined than that which Deception Island...presented: the wild and solitary woods of Staten Island...lonely and uninviting as they appeared to us, were desirable to this. There the visitor [*sic*]...finds vegetation flourishing; and in the animated face of nature there is much to gladden his heart and to employ his mind in the solitary glens; but here all is joyless and comfortless, huge masses of cinders and ashes lie strewed about...No vestige of vegetation relieves the eye...."

Again, "hosts of penguins...harmless and happy in their dreary abode."

He painted a cheerless scene! "The temperature of the sea-water in the basin was not affected by the subterranean heat of the island, the surface being generally between 32° and 37° of the Fahrenheit. One night during our stay, the surface was frozen entirely over; and this occurring in the middle of summer." Vegetation he thought to consist of a small moss and a striped coralloid lichen; seaweeds were neither common nor interesting; fish there were none in the basin.

By Webster's time, what a change had occurred in regard to seals! "The islands of South Shetland, and Deception Island among

the rest, formerly abounded with seals; but such is the havoc made by sealers among them, that they are now scarce and seldom seen." During the stay, they did not see a single fur seal. There were, however, leopard seals, of which specimens were obtained — about 29 gallons of good oil could be obtained from a single carcass but the skin was of little value.

Birds got top billing with Webster and his account is full and detailed. Penguins (species not further identified) still occurred in unbelievable numbers, even after the death of thousands taken for food by his crew. Penguin meat sliced and fried with a little pork was more or less acceptable food; salted and preserved, it was totally disgusting. He counted two species of terns; the Port Egmont hen; a black-headed gull; stormy petrel, "or Mother Cary's chicken of sailors," in abundance. There were Cape pigeons; "procellaria nivea," "or snowy blue-nosed peterel"; "procellaria gigantea," a "large grey bird of voracious habits, more commonly known as the Nelly." He listed further "pelicanus graculus," or blue-eyed shag; the "vaginialis alba," sea pigeon, made, he noted approvingly, "excellent materials for pies, and...considered the best dish on our table afforded by these regions." He speculated how they got there, having, he thought, no great power of flight.

In a separate commentary on Deception Island (unsigned but evidently by Webster), we hear an echo of the above, together with a detailed account of geology and morphology. There is some comment on seaweeds; no fish were seen; the abundant crustacea fed the multitudes of sea-fowl; while, "formerly two thousand skins [of fur seals] a week could be procured by a vessel: now not a seal is to be seen." His account of leopard seal anatomy is detailed and perceptive. Some aspects of penguin anatomy are also remarked upon.⁴⁵

We have a nice counter to Dr. Webster's masterful account of the tour of the *Chanticleer* from the manuscript private journal of Midshipman Joseph Henry Kay of that ship. This attractive narrative is in the library of the Scott Polar Research Institute, Cambridge, and has been seen through their courtesy. Perhaps Kay's

preliminary estimate that theirs was a ship that "could not be more completely fitted up for a hazardous scientific or long cruize" was optimistic but he makes it sound impressive. The ship had been rigged and fitted "for the mutual convenience and comfort of the Officers and Men"; it had been "most handsomely supplied by Government with Instruments for the different scientific observations intended to be made"; they hoped to be prepared to fend off ice (although they were barred from visiting the Antarctic continent by sea-ice, even in the southern summer); they were supplied with Donkin's preserved meats and pickles (but still spent a good part of their southern visit miserably short of rations); and had a stove "arranged on the Lower Deck of W. Frasers construction which entirely dispensed with that great nuisance on board a ship, viz. smoke." Its accounts of landings along the way to Staten Island, and the forays into and around Cape Horn are, perhaps, lightweight. But they provide a touch of authenticating humanity that one misses in works left by James Eights.

Thus, it is atmosphere and details of daily life that you get from Joseph Kay. In this chapter, unhappily, I must stick to notices of Antarctic life alone, for Kay is a lively presence throughout.

On 5 January 1829, they sighted Smith Island (westernmost of the South Shetlands), from which they then meant to steer for Deception Island. It was "a miserably wet and cold morning" and the island was "Black, barren and [with] summits covered with snow." A heavy swell was accompanied by a rising wind; rain turned to a severe snowstorm. Midshipmen were posted out on the confines of the exposed fore-castle to keep watch for icebergs. Movement was impossible and the cold most distressing, yet the safety of the entire ship depended upon correct observation and suitable directions. As Kay puts it, in a Kiplingesque turn of phrase: It was "necessary that great attention should be paid to the steerage of the ship among the numerous icebergs[,] as one accident might have been the means of our having had to spend the remainder of our lives there (however short they might have been)."⁴⁶

On 7 January 1829, a party from the 'Chanticleer' landed on Smith Island and proclaimed British ownership and on 8 January the ship steered easterly for Deception Island. The sun did not set until 9:30 and Kay could read a book clearly at midnight. There were numerous icebergs, some of immense dimensions.

Kay writes ruefully (9 Jan) of the destruction of the fur-seal populations within a short decade in the South Shetlands. There were still penguins — what sort they may be, he does not say; he describes one rookery near their landing place that was from 300 to 400 yards square.

A deceptive island Deception was: icebergs all around, the bay itself freezing over one night, hilltops covered with snow and never-melting ice. Yet, smoke (or steam) issued from crevices at water level. "By digging a small hole in the ground it would be immediately filled with hot water at the temp. of about 54°C and indeed would (had we possessed any) easily have boiled an egg." Midshipmen were assigned the task of continuous recording of magnetic readings — under a mere flap of canvas by way of protection, the nighttime temperature down to 34 F: even with "all the blankets I could muster—besides monkey jackets, it was confoundedly cold sleeping...but I managed to bring inside my bed up to blood heat I think" (14 January).

On 17 January 1829, the launch visited a penguin rookery "to procure some for salting sea stock," an experiment that Webster characterized so emphatically as producing a most disgusting product. On the way there Kay shot several albatrosses (refers to them as "Diomedea," leaving no doubt of their general identity; which species he saw cannot be determined) "and Eglets, Nellys, &c." I presume "eglet" to be his name for skua; "nelly" is the giant petrel or giant fulmar, *Macronectes* (see note further along). He was much astonished to find their craws filled with shrimps, "which plainly showed that the water was not so unproductive as I had supposed." "We landed amidst myriads of penguins all drawn up in battle array and our work of execution soon began, disdaining to shoot them, but using a small clubbed stick, some killing, while others

loaded the boat. We massacred 500 thinking that would be enough for the present."

When the atmosphere was clear, they could see smoke (or steam?) issuing from the snow-capped mount behind them (28 January). "We fancy sometimes (and I believe it is reality) that subterraneous rumbling noises are heard as if proceeding from the very entrails of the adjacent hills." At the end of the entry for 31 January: "Memo: I find the bread is not near enough for us."

On 2 February 1829, Kay noted the presence of a leopard seal; his promise to supply "a small account" of it did not materialize, although there is a blank space in the journal, perhaps left for that purpose. On 8 February, they awoke to find ice a quarter-inch thick on the water of the harbor; the thermometer had been as low as 24°. The steepness of the cinder-covered hill was ascended with difficulty, for the soil would not allow foothold. However, he had a good view of nearby islands, particularly Livingstone, "whose very shores were encompassed with massive icebergs." The temperature in the hot springs was 150°F to day and the beach was smoking greatly all along."

"Febr^y 9th From the great havocs that our men have made among the penguins on this part of the harbour, the supply is become but scanty and therefore a cutter was dispatched to day to replenish our present use stock. Quantities of birds of the following species are flying about our tents all day long. First the Silvery Gull (*Larus Argentea*) that really most elegant bird uttering a harsh scream but its plumage of a silvery white. The Eglet, the Nelly, so called by Sailors, but in reality the grey peterel. Penguins, a most delicate species of Tern with red beaks, and a kind of white pigeon with a Parrots bill which latter is only found near the mouth of the Harbour. The Nelly has such a predilection for blubber or any sort of oily food that I have frequently seen them so gorged as not to be able to fly. This unaccountable taste renders their flesh unpalatable, nor are their eggs so good as those birds who are not so voracious. The Eglet something resembles a young eagle in appearance and is a most voracious, ravenous bird, of a dark brown colour. I

have also frequently seen them [that is Eglet and Nelly] contending one with the other, who shall have the honor or pleasure of picking the entrails out of a Penguin just killed and yet warm, left there perhaps by some one gone after some more. Indeed if a Sea leopard or Seal was killed and his carcase left on the beach these gentlemen assisted by M^r Nelly would sufficiently dissect him in a few hours."⁴⁷

On 13 February: "Our provisions are so very scanty that we cannot afford to drink tea of an evening and must now content ourselves with fasting from 12 i.e. dinner time to 8 AM the next morning and therefore go supperless to bed." The following day, "dirty weather" reported, "Parties are employed all day long with the Purser, skinning and salting the Penguins for Sea Stock of which I believe 700 are going to be prepared." The winds, snow, and sleet were so disagreeable that "(except when duty forced us out) we very seldom quitted our blanket bags." Kay's bag was "3 blankets sewn one within the other and [I] used to 'turn in' during the day 'all standing' except my shoes."

On 20 February: In their tent — "Gale unabated and dreadfully cold and having no observations to make we lay in bed till dinner time, not being able to get any breakfast as the snow had blocked up our little fire place and we could not get the fire to light." "I think I do not exaggerate when I say that hundreds and hundreds of penguins have come up during the night and taken shelter in the vicinity of our tents."

26 February: Kay and Midshipman Charles Frederick Collnett ascended "S^t Georges Mount to day for the purpose of placing a flag on its summit which was evidently composed of one immense iceberg. We commenced the ascent at 8 over a rugged path...composed of cinders and ice intersected with streams of snow water...and by 1/2 past 9 had reached a more level part of the hill....All around the ground was perforated with holes from whence issued hot steam with a loud hissing noise and at such a temperature that we could not bear our hands near them. The Ground was also cracked in several places as if it had been done by the heat." Later the

same day, he noted that the "only vegetable production that was found by any of us was a little moss — most likely produced by dampness in the caves and holes where it was found; as for any other the island does not produce it and we could not therefore make a weekly demand for fresh provisions and vegetables": no doubt a rueful reference to the relatively much more clement lands about Tierra del Fuego. In any case, their work over, after a fearfully dangerous departure from Deception Island in early March and an ensuing rough passage, they made Cape Horn, which they sighted on 23 March.

Life was not entirely luxurious even when Cape Horn was reached. Kay's shoes had worn out, supplies were short, and the cold, wet climate was debilitating. However, they cut wood for fuel, made a rude log hut for protection, and for "amusement (or rather necessity)" they went "by boat among the kelp [to] catch fish for our dinner, of which sometimes several dozen might be caught in a morning, a hint which we received from the Indians who used to catch them by enticing them to the top of the water with a small piece of seals fat or anything and then as dexteriously quick as lightning put out their hands & seize hold of them. The usual employment of the men was catching fish when the weather permitted, which was indeed seldom. There was no level spot of ground there 3 yards in circumference on which any one could walk, and the celery was again picked & eaten as before."

"13th 1829 The 2/3 allowance of provisions was again commenced today and all contrivances were in vogue to obtain something to eat. The berries of the *Arbutus Aculeata* were much sought for although few were to be got and I used to go into the woods after dinner, and search for them by way of dessert. Parties were appointed to cut wood and make charcoal, some to fish, some to pick celery and berries and all had employment. My gun was a constant companion, in search of something for the 'pot' for these hungry times." Joy of the party was unfeigned when Captain King of HMS *Adventure* sailed into their harbor with relief supplies (17 April).

Leave is now taken of Midshipman Joseph Henry Kay. As for James Eights, sometime naturalist and surgeon of the *Annawan*, there remains little of a concrete nature to say of his South American visit. His stay in Chile, where the happenstance visit of his ship and its consort the *Penguin* after the Antarctic cruise, rather unceremoniously and unexpectedly left him, remains largely a mystery. To that mystery, I shall return in my next chapter, which will treat of his activities in Chile, so far as they can be guessed from his works, and of his unscheduled and unheralded return to Albany. Certain of his activities in Chile add to the technical accomplishments of his work but tell us nothing securely about his itinerary or his personal fortunes.

NOTES

1. W.A. Taylor, "A history of Antarctic discovery" — a good look at the late Classic world's view of a polar continent; Hugh Robert Mill, "South polar exploration in the last hundred years"; he alludes inaccurately, p. xxviii, to "An American man of science, Mr. J.N. Reynolds," who "had gone to Palmer Land in the early days"; Brian Roberts, "Chronological list of Antarctic expeditions" (ess especially p. 111), gives full credit to whaling and sealing crews who explored this turbulent region; R.K. Headland, *Chronological List of Antarctic Expeditions and Related Historical Events*, is full and useful.

2. See G.E. Fogg, *A History of Antarctic Science* (in which Eights gets full billing, pp. 45-48; reference to Reynolds, p. 58-59); for an early effort, nearly missing Eights, see H.R. Mill, "A bibliography of Antarctic exploration and research" — only one of JE's papers, a reprinting, is noted, p. 542. For various perspectives see the following, some of which will later be cited in more detail: Lawrence Martin, "Early explorations and investigations in southern South America and adjacent Antarctic waters by mariners and scientists from the United States of America" (1940), with its focus on Eights, needs to be checked against later accounts; Philip I. Mitterling, *America in the Antarctic to 1840*, pp. 97-100, 101 and documentation; Richard S. Lewis, *A Continent for Science, The Antarctic Adventure*, pp. 14-15, 25; Herman R. Friis and Shelby G. Bale, Jr., eds., *United States Polar Exploration*, pp. 44-45, 103, 105; Henry M. Dater, "History of Antarctic exploration and scientific investigation," various, but see especially plate 2; G.E. Fogg and David Smith, *The Explorations of Antarctica, the Last Unspoiled Continent*, pp. 24-25; the best American perspective is in the able synthesis written by K.J. Bertrand in *Americans in Antarctica*. It quickly becomes clear that even as commercial sealers, the Eights party was out of synchrony with the times.

3. Bertrand, *Americans in Antarctica*, deals even-handedly; others have been too anxious to put their heroes

alone in the limelight; a lot of ink has been spilled, some of it injudiciously, by those anxious to untangle claims (particularly those favoring one nation or another); see E.S. Balch, "Stonington Antarctic explorers" and other papers by him; R.T. Gould, "The charting of the South Shetlands, 1819-28," is a good example of the kind of spirited periodical warfare that has gone on, right into our time. J.N. Reynolds was not above such sniping, even at friends: "Fanning's account of the voyage of 1819 is not entirely accurate," and Benjamin Morrell's "descriptions have more poetry than truth" (Balch, "Stonington," p. 477).

4. The lack of recognition, already alluded to, will be further treated later; see Bertrand, *Americans in Antarctica*, for a good summary. Eights himself (letter to Amos Binney, 9 Aug 1834) intimated that he was to supply species descriptions to a book by J.N. Reynolds. Reynolds's proposed book never got to a front burner.

5. Spellings as in original, as far as I can make them out from a microfilm that is, in this critical Antarctic part of the log, often fuzzy; with the best of luck, I may have misinterpreted some nautical abbreviations and jargon. For example, "Act" is not always clear; I take it to mean "Account," that is, calculating position from ship's records, with allowances for current, leeway, etc.; this is sometimes equated to "dead reckoning" but some authorities define "by Account" as meaning "estimated position" and reserve the term "dead reckoning" for a calculation made without such allowances. I have supplied a period at ends of each daily entry (none in original!); within text of the log, I have introduced a slant (/) between what I take to be separate statements; I may have here and there misinterpreted these breaks.

6. Elephant Island, 61°10'S, 166°32'E, also called Barrows Isle and Mondrins Island; 24 miles long, greatest width 12 miles; discovered by Bransfield in 1820; named by Americans from the abundance of elephant seals; see J. Stewart, *Antarctica*, p. 299. The South Shetlands were first sighted by William Smith, an English sealer from Blythe, in 1819 — the first sighting of truly Antarctic land, that is land south of 60°S (Stewart, p. 927); see Note 45. For a useful survey of the South Shetland Islands, see: R.K. Headland, *Chronological List of Antarctic Expeditions*, p. 15 (map, p. 17): a "540 km chain of four main groups, including eleven major islands...several minor ones, with many islets and rocks; some volcanic; average about 120 km N of the Antarctic Peninsula." Part of British Antarctic Territory but also claimed by Argentina and Chile.

7. O'Briens Island; see Stewart, p. 718: 61°30'S, 55°58'W, 2 mi SW of Aspland Island.

8. "Made the land" = came within sight of King George Island; for Potters Cove, see "Potter Cove," Stewart, pp. 788-789, 62°14'S, 58°42'W, an indentation on the SW side of King George Island, to the east of Barton Peninsula, discovered by sealers prior to 1821; Stewart, pp. 508-509, is unable to identify further James Johnson, whose tender (or shallop) is here referred to — he "must have been a sealer of the 1820s"; Bertrand, p. 153, thinks this shallop may have been later "rigged and used to cruise along the beaches," perhaps being used to carry James Eights on the visit to Deception Island that Bertrand believed he alluded to in his natural history account — a visit that I think needs careful evaluation.

9. Stewart, p. 689, describes Nebles Harbour as a harbor, precise location now unknown, named by Weddell in

1825; the name is preserved in Nebles Point (62°12'S, 58°52'W), on the "west side of the entrance to Collins Harbor, in the SW part of King George Island."

10. Port Egmont (or Port Egmont hen), the great skua, *Catharacta skua antarctica*.

11. Bertrand, *Americans in Antarctica*, p. 153, believed that this passage proved that James Eights was among the men brought along in the boats from the *Annawan*, for he alone would have recognized an erratic boulder in an ice-berg; this will be discussed further. I am uncertain about the meaning of all this, for it appears clear to me that the words *uot* and *we found* are later entries, perhaps after Eights had clarified matters to his own satisfaction. Thus, there is the possibility that the change was made after consulting with Eights, who may not have been with the party.

12. Harmony Cove, 62°19'S, 59°12'W, between Harmony Point and The Toe, west side, Nelson Island; named by U.S. sealers in 1820 for the schooner 'Harmony' (Stewart, p. 430).

13. They had emerged from the north end of Nelson Strait (called King George Strait here); Clothier Harbor was on the northern side of Robert Island; see Bertrand, p. 153.

14. Yankee Straits, perhaps also Yankee Sound, apparently is now referred to as McFarlane Strait, according to Stewart, p. 604; if so, its location is 62°32'S, 59°55'W; both names go back to the early 1820s; for Sherreff Cove (as spelled here), read Shirreff, as in Bertrand, p. 153, and Stewart, p. 907: the latter gives location as 62°28'S, 60°48'W., just SW of Cape Shirreff, "on the north side of Livingston Island"; it was named in 1820 for William H. Shirreff, early English surveyor of the Pacific Coast of South America.

15. While the name is definitely "Ragged" here, it is properly Rugged Island; Stewart, p. 809, 858, gives location as 62°38'S, 61°15'W, three miles long and a mile wide; elevation 650 ft; discovered 1820 by crew of the *Hersilia*; they actually named it "Ragged Island" but the name later became corrupted; Bertrand, p. 153, identifies the log-keeper as Captain Palmer.

16. Eights commented on the rarity of fishes in high latitudes that would take a hook.

17. Thus ended the southerly adventure of James Eights in the Antarctic. If the story is not entirely mythical, it must have been here that Eights enacted the piece of bravado credited to him by relatives in later years: In a letter of 24 April 1915, Henry Sage Dermott, of the First Presbyterian Church of Albany, wrote that he had been told by relatives that Eights had many years before gone off "with a vessel in search of the South Pole...When the ship could go no farther south, it faced about. James Eights ran with all speed to the stern of the vessel and ever after claimed that he had been nearer the South Pole than any other mortal." This, naturally, would not have been true, in any event, for they were not as far south as the Antarctic Circle, which had been crossed more than once by James Cook, in his ship's circumnavigation of Antarctica a half century earlier. See Bertrand, p. 154, in regard to the new destination, "in search of the islands reported by Captains Swain, Macy, and Gardiner."

18. For Heywood Island, see Stewart, pp. 453-454, a crescent-shaped island WNW of the northern tip of Robert

Island; named in 1822 for Capt. Peter Heywood, RN; 62°20'S. 59°41'W; see Bertrand, p. 154, for account of departure, etc.

19. The words "fise birds" are relatively clear in the manuscript, so all the more confusing. While it is difficult to believe that a New England sealer would have used an obscure word like "fise" (see O.E.D. [2] 5: 962 — "... a small windy escape backwards"), that is, calling it a Fart (or Fizzle) Bird, I am reminded (W.L. McAtee, *Nomina Abitera*, p. 23) that the diving petrel, *Pelecanoides uriuatrix*, was called a "Horse-fart" by whalers, probably in reference to its frequent obvious release of fecal material; in addition, the skua relatives, also possibly seen, have a generally suspect reputation (McAtee, pp. 35-38) with regard to release of fecal wastes; R.C. Murphy (*Oceanic Birds*, p. 1033), provides a likely laundered name of "Dirt Bird" for the Tristan skua.

20. See excellent map of track of the ships in Bertrand, p. 152.

21. For Mocha Island, on the Chilean coast, see U.S. Hydrographic Office, *South America Pilot* (3: 169): "about 7 miles long, by 3 miles across, and is about 18 miles off the coast." "The summit of the island, 1,112 feet above the sea, is a prominent landmark. The island is surrounded by shoals and rocks on all sides...These are particularly dangerous during the flood tide...Thick weather occasionally sets in for days." W.G. Blackie's fine old gazetteer (1855, 2: 370) has it: 20 m off coast of Chile at 38°23'S. 73°59'W; about 7 m long, 3 m broad; altitude 1250 ft; anchorages indifferent, landing bad; no supplies except wood and water (latter excellent).

22. The Eights paper was the first of his scientific reports and ought to have brought him greater honor than it did. The natural history part of the paper was rather widely used; its later obscurity becomes all the more difficult to comprehend. First of all, it made up pp. 58-69 of his "Description of a new crustaceous animal found on the shores of the South Shetland Islands, with remarks on their natural history" ("by James Eights, naturalist to the exploring expedition of 1830, and corresponding member of the Albany Institute. Communicated July 10, 1833"). His affiliation, as given here, is in itself odd; his paper was read by a member, M.H. Webster, at a special meeting of the Institute on 10 July; the original manuscript is still in Institute archives (see AI "Minutes. 1824-1857"); yet, he continued for some years to make contributions as if he were a regular member as, indeed, in most respects he seems to have remained. These natural history notes were quoted in their entirety in *Niles's Register*, 3 May 1834, pp. 167-168 (where they were reprinted from the New York *Mercantile Advertiser and Advocate*), both notable popular notices of the work. Edmund Fanning used the notes, except for a few sentences, in his *Voyages to the South Seas* (1838, etc.), pp. 195-216. Nearly all these notes were used again by the editor of *American Journal of Science* in 1856, where they accompanied a reprinting of a taxonomic study of another of Eights's new crustaceans, the naming of the isopod *Glyptonotus*.

23. J.N. Reynolds, "Leaves from an unpublished journal" (1833). Barrows Isle was also called Mordrins Island; why Reynolds used this name for it is not clear, since, after its discovery by Bransfield in 1820, it was named Elephant Island "in 1821 by American sealers who found an abun-

dance of elephant seals here." It is located 61°10'S, 55°14'W and is 24 miles long, its greatest width 12 miles (Stewart, p. 299).

24. Seal Rocks, presumably now Seal Islands; Stewart, p. 888: 60°58'S, 55°24'W; small rocky isles, 3-6 mi north of Elephant Island; the northernmost of the South Shetlands, they were discovered by Bransfield in 1820; notable numbers of seals were killed there in the early years. If identification is correct, Reynolds was in error to write that the isles were southwest of Barrows (Elephant) Island; they lie to the *northwest* of that island. Reynolds certainly adopted a heroic stance, to make so little of a swim in that icy water! At that time, one veteran of the Antarctic sealing age recalled, "no fire was known on the vessels, only that used for cooking the food. Even the cabins were cold and cheerless, and after returning to the vessel from the labour of the day, the men would retire to their bunks as the only means of getting warm" (E.S. Balch, "Stonington Antarctic explorers," p. 490). I am unable to identify the islet described in detail by Reynolds, although if his directions are to be trusted (and if I am correct in the identification of Seal Rocks), it may have been part of Gibbous Rocks, 4 mi NW of Cape Belsham, Elephant Island.

25. "Rodman's Cove," as presently understood, seems to be the same as Reynolds had in mind but was officially bestowed by Lawrence Martin about 1940; Stewart, p. 842, gives its position as 61°07'S, 55°28'W, west coast of Elephant Island; Benjamin Rodman was the owner of New Bedford whaling ships; also called Emma Cove. As for Samuel Lewis Southard, he has been honored in the Antarctic, but not at the place here mentioned (Stewart, p. 946).

26. "Clarence Isle" = Clarence Island, Stewart, p. 192, 61°12'S, 54°05'W; 12 mi long; named before 1821.

27. I begin at this point to trim more and more of Reynolds's peroration.

28. The names listed are sailors' appellations for four various seabirds; if Reynolds is to be trusted as recounting a realistic list of those present and not being merely metaphorical, he meant: Mollymock, some species of albatross; Nellie, giant petrel, *Macronectes*; Gull, presumably a true gull, since he would have used a different name for skua — the dominican gull is the local species; Mother Carey's chickens, probably Wilson's storm petrel.

29. J. Eights, "Description of a new crustaceous animal," pp. 58-69, 1833; see relevant comments earlier. Antarctic literature, by now, has an abundance of references to the South Shetlands (the term "New" is not used), for they are the center of much modern scientific research. For a thumbnail sketch, with a complete list of islands and islets, see Stewart, pp. 945-946. Despite some petifogging claims by Edmund Fanning, they appear to have been discovered in 1819 by British seaman William Smith (who initially called them "New South Britain"; see Note 2). For a notably complete documentation of the South Shetlands' early history (with a few grains of salt thrown in for good measure), see R.T. Gould's "The charting of the South Shetlands, 1819-28." The history of the destruction of the fur seal and elephant seal resources has been recorded many times; see Alonzo Howard Clark, "The Antarctic fur-seal and sea-elephant industry" (1887); various publications touch upon the history of sealing expeditions, a recent example being Jorge Berguño B., "Las Shetland del Sur: el ciclo lobero" ('South Shetland Islands: the sealing

cycle'), parts 1-2, 1993. There is a good summary account of the South Shetlands in George C. Watson's *Birds of the Antarctic and Sub-Antarctic*, pp. 266-271; a reliable working list of birds to be expected there may be gleaned from R.C. Murphy's list of Scotia Arc species, in his *Oceanic Birds of South America*, I: 232. It is appropriate to remember, when reading accounts by Reynolds and Eights, that King George Island today is subjected to such intense usage, from "scientific activities, tourism, vehicles, use of fuels and waste disposal," that "existing management practices have not been adequate to deal with these problems and new approaches are required" (Colin M. Harris, "Environmental effects of human activities on King George Island," p. 193).

30. For additional reflections, with some repetition, see Eights, "On the icebergs of the Ant-Arctic sea," quoted in full later in this chapter. It is of interest to note that in the case of iceberg erratics, long a matter of great interest to him, Darwin inadvertently cited Eights's work without crediting him. In 1839 ("Note on a rock seen on an iceberg in 61° south latitude"), Darwin built his case for the transportation of rocks by icebergs, citing records later than that offered by Eights. He noted that the French naturalist, Pierre Louis Antoine Cordier ("Expéditions scientifiques," p. 283, 1837) did refer to an interesting finding "by the naturalist of an American expedition in 1830." It appears that Darwin hastily overlooked Cordier's recognition of Eights as the naturalist, whose names is mentioned. This is explained at length by Lawrence Martin in "James Eights' pioneer observation and interpretation of erratics in Antarctic icebergs." Later the same year, in an addendum to his *Journal of Researches*, p. 613, Darwin quoted Cordier correctly but claimed to know nothing of either the expedition or of Eights. William Mills, in "Darwin and the iceberg theory" — without giving any credit to Eights — shows that the roots of the theory considerably antedate Eights and Darwin: but Darwin still gets the spotlight. Turnabout, I suppose, being fair play, in an 1842 contribution on icebergs, with much on transport of boulders, some personal observations going back as early as 1827, Joseph P. Couthouy cited works by *neither* Darwin, whose work he ought surely to have known about, nor Eights, with whom he was at least somewhat personally acquainted.

31. Here, again, by many decades, Eights had an unnoticed "first." John F. Spletstoeser, in "First in Antarctica," belatedly recognizes Eights's priority. William J. Zinsmeister, in "Early geological exploration of Seymour Island, Antarctica," points out not only Eights's early discovery (p. 2) but notes that the next earliest report of Antarctic fossil plants, in the early 1890s, went largely unnoticed for many decades. The extent to which Eights was sitting on the mother lode of fossil floras at King George Island (supposed source of his specimen) can be appreciated by noting the abundance of finds there as shown by K. Birkenmajer and E. Zastawniak, in "Late Cretaceous-Early Tertiary floras of King George Island, West Antarctic"; see especially the map, Fig. 2, p. 229. It must be noted that it is not clear whether any part of Eights's specimen was brought back by him or if he merely described it from his notes; if he did bring it, or a sample, back it has vanished.

32. Bertrand, p. 153, on the basis of this allusion to Deception Island, assumes that Eights actually visited it.

Without an extensive study of other accounts of the Antarctic, including that by Weddell, to see if Eights quotes from any of them, I should be cautious about doing so. If Eights is credited with an early visit to Deception Island, such has not caught on in popular literature. John Reynolds, "Land of ice and fire" (1995), says nothing about him in regard to the islands early history. Stewart gives details of Bridgeman and Deception islands: Bridgeman Island, p. 236, 62°04'S, 56°44'W, a volcanic island, one-half mi long, circular, 240 m high, 23 mi E of King George Island; named about 1820; Deception Island, p. 246, 62°57'S, 60°38'W, a volcanic, horseshoe-shaped caldera; the crater, which forms a notable harbor, is 8 mi in diameter; its volcano has erupted three times within recent years; note references to it in Kay's journal farther along.

33. Eights's "avena," a grass, will be described in the scientific results of his investigations. Some reference will be made there to the other plant species of the South Shetlands.

34. It is better to ignore Eights's hodgepodge of scientific names of seals; his common ones will provide identification: elephant seal (or sea-elephant); leopard seal; southern fur seal; and, judging from the remarkable teeth alluded to (if of the species he had a glimpse of, which seems likely), the crab-eating seal, *Lobodon carcinophaga*, as suggested by W.T. Calman, "James Eights, a pioneer Antarctic naturalist," pp. 177-178.

35. This is certainly a truncated list of whales; but identifications can be accepted as far as they go; the "sea skunk," is indicated in Calman, p. 178, to be probably *Lagenorhynchus cruciger*, the hourglass dolphin, a species not scientifically named until 1847.

36. Eights's bird taxonomy was as unsteady as his punctuation in this nearly endless paragraph. In addition to finding modern equivalents for his barbaric Latin terms, one must reckon with the possibility that he may have added the occasional species which he saw elsewhere. A case in point may be his seemingly excellent account of the king penguin. R.C. Murphy, *Oceanic Birds*, 1: 344, 348, cautiously accepted Eights's record of the species for the South Shetlands but noted that there is no such record for it there in modern times; indeed, it constitutes a distinctly southern record, especially considering the numbers that Eights claims to have seen. Calman, p. 178, suggested that Eights may have observed the species at Staten Island, then forgetfully put it with other penguin species on the South Shetlands. It is, however, worth pointing out that Ulrich Lange and Jan Naumann, "Weitere Erstnachweise von Vogelarten im Südwesten von King George Island," p. 165, established a recent record for the species. Perhaps it was previously present but was exterminated early on, certainly a possibility, considering the massive slaughter of all resident animals there. Note also that one of the penguins noted (see below, Note 43) by Richard Sherratt seems certainly to have been this species. The final three genera and species of penguins listed are difficult to untangle as to possible species; I should assume his "rookery penguin" to be the chinstrap penguin; two others to be expected are Adélie and gentoo penguins. "Phalacrocorax" is a shag or cormorant; "Sterna," a tern; his two species of "Diomedea" (albatross) are believable but I should be wary of his scientific names without further study; "Daption" is the Cape pigeon; two species of fulmar, including

"giganteus" (Giant fulmar), are acceptable; "Procellaria" is some sort of petrel; "Larus," a gull, is acceptable; by "Lestris," he means the skua; "Chionis" is the sheath-bill and his remarks are apt. While some authors have credited Eights with being the first scientist to report upon work in the Antarctic, this is not true. It is correct, if you will, to say he was the first American scientist. As regards bird life, Brian Roberts ("A bibliography of Antarctic ornithology," p. 341) makes him the second observer, W.H.B. Webster having made a respectable list of birds for nearby Deception Island a year earlier (this will be discussed later). Indeed, there are decent merchant seamen's bird lists that antedate both observers (see accounts, quoted later, of Young, Bone and Sherratt).

37. Mollusks will be treated in a part of the section on systematic zoological results of Eights's trip, since the list (including those from southern South America) is an extensive one; his reference to *Nucula* is noteworthy, as will be shown.

38. Consult Bertrand's map, p. 152, and note that the "southwestern" explorations made by the *Penguin* and *Amatvan* in search of islands took them progressively farther from southern continental lands than they were at King George Island. Beyond this, Eights's final paragraph here requires little comment, except to say that he was guessing. The ability of American exploiters of natural capital to exhaust their resources and thus be ever in need of new lands to ravage, can hardly have been better enunciated. In his green certainty that somewhere out there lay an ever-teeming cornucopia, he identified himself with the dream of his age. John McNab's log of the schooner *Eliza Scott*, 1839, although kept a decade later and on nearly the opposite side of Antarctica, shows clearly that you could frequently encounter whales and an abundance of penguins and other sea birds in marine waters far indeed from land.

39. Bertrand, pp.154-15, refers briefly to Pendleton's adventure. E.S. Balch, "Stonington Antarctic explorers," cites manuscripts of interest, including one ascribing to Capt. Alexander S. Palmer (Pendleton shared the same sentiment) the statement "... said cruise furnished an example that no sealer ever wished to imitate, namely to search for land south-west from Cape Horn." For Pendleton's statements in regard to his role in the expedition and the generally low rank he accorded Antarctic research, see "Memorial of Edmund Fanning" (properly, 'and Benjamin Pendleton'), 1833, pp. 3, 9, and elsewhere; see also E. Fanning, *Voyages* (1833), pp. 478-488.

40. JE, "On the Icebergs of the Ant-arctic Sea."

41. Railing against the past is a vain endeavor but one must not lie. See Lieut.-Commander R.T. Gould, "The charting of the South Shetlands, 1819-20," pp. 207-208, for a retrospective comment on sealing and whaling worthy of our notice; see also J. Stewart, *Antarctica*, p. 889. See Gould, pp. 218-220, for further documentation on Bransfield's explorations. Adam Young (as he reported in 1821) did not do badly for an amateur: note the reference to the stunted grass, the "myriads of sea-fowls," including four species of penguins, albatrosses, gulls, pintadoes (Cape pigeon, *Daption*, a petrel), shags (cormorants), sea swallows (terns) and, notably, the white bird with unwebbed feet, the sheath-bill, *Chionis*, a bird that Eights also found worthy of extended comment. His "sea

lion" is pretty surely some other species of seal, perhaps the elephant seal, for he accounts for the fur seal. Stewart, p. 1127, gives no useful information on Dr. Adam Young; his account (p. 120) of Edward Bransfield (b. ca 1795, d. 1852) is fuller and there is a good accounting for the stay in the South Shetlands, 16 Jan–4 Feb 1820, which they tentatively took to be part of the mainland. They did indeed glimpse the Antarctic coast of Trinity I and but sea-ice conditions prevented their making a landfall. For the exploration of the *Williams*, see Stewart, p. 1107.

42. Gould, p. 220, reproduces maps of this expedition (and much else). Stewart, p. 107, adds nothing to a biography of Bone, and, in fact, merely gives his middle initial only, not a name.

43. Thomas M. Bone (journalist), with editorial notices, "Edward Bransfield's Antarctic voyage, 1819–20, and the discovery of the Antarctic continent" (1946), pp. 385, 388, 390. Red snow seems likely to have been the product of an abundant colonization by various algae, as has been proved elsewhere. The bird list is a good one and most of his species can be accounted for. If he did see five species of penguins, perhaps one of them was Eight's king penguin. His report of an all-white penguin is incorrect, unless a mere individual color anomaly. He makes no distinction among albatrosses; his "large brown bird with a few white feathers in the upper wing" was probably the skua, otherwise known as Port Egmont hen; Cape pigeon is *Daption*; "Petterel" is a small petrel, one of Mother Carey's chickens; whether he thought there was more than one species of gull is not clear; his shag is a cormorant, probably the blue-eyed — whether the white-breasted one seen on a boating trip was thought different from the nesting species is not clear; the "sort of pigeon" is our friend the sheath-bill. It had not occurred to him that penguins do not feed on land but in the sea. Information touching upon the exploration described by Young and Bone appears, in somewhat elaborated (but not improved!) form in an account written by a nonexploring acquaintance of Edward Bransfield; see "John Miers' account of the discovery of the South Shetland Islands" (1950, quoted from the *Edinburgh Philosophical Journal*, 1820). Its natural history is somewhat wild, evidently added by the author, English engineer John Miers (1789–1879), at the time resident at Valparaíso: the presence of sea otters and what "may prove to be a variety of the ornithorynchus [duck-billed platypus]," and trees being singularly imaginary guesses.

44. "Richard Sherratt's chart of the South Shetland Islands, 1831" (ed. by Brian Roberts), 1952, pp. 363, 364, 365; reproduced from a periodical dated Oct 1821. It is a sane, if somewhat imprecise, list in the line of natural history. Two species of whales, fur seals, sea elephants, various small whales all sound right. The bird list requires some comment but is mainly sound. Three species of penguins makes it appear quite modern (see Murphy, 1936, 1: 232); there is some question which three species he meant, however; the "crown penguin" seems likely to have been the king, a handsome creature with a distinct red band around the back of the head and the only penguin in the region that could be described as having "beautiful yellow and black plumage"; this may tend to confirm Eight's report of that species from King George Island; the Adélie is likely "the black and white one"; it is more difficult to imagine what his penguin without the red "tuft" but simi-

lar to number one was; 'gannets' is difficult — the term would presumably be used for some species of booby but no species of the genus *Sula* is now known for the area, although they are abundant farther north; "Cape hens" are sea hens, Cape hawks, Port Egmont hens, or skuas; "pigeon" is the sheath-bill — they are by no means wind-blown waifs.

45. For a biography, see "Dr. W.H.B. Webster, 1793–1875: Antarctic scientist," by A.G.E. Jones, 1974. Capt. Henry Foster's *Narrative of a Voyage to the Southern Atlantic Ocean* was prepared for publication by Dr. Webster, surgeon of the sloop *Chanticleer* (Foster was drowned on the return trip). Except for signed appendices, its contents can be credited primarily to Webster and is so listed in this book. There is a rather favorable account of Staten Island, vol. 1, pp. 99–131; a technical account of hydrography, etc., 2: 255–264, its vegetation, 2: 290–299; for Deception Island, see especially vol. 1, pp. 147–164; technical memoir on South Shetland (that is, Deception Island) by Henry Foster, 2: 273–280, with a further description of Deception Island by Webster, 2: 300–306. For Henry Foster (1796–1831), see memoir in *DNB* by Gordon Goodwin. Webster's bird list requires little comment: He does not distinguish among penguins; one presumes *Sterna vittata* to be one of his terns; Port Egmont hen was the skua; his gull was the kelp or southern black-headed gull (he used the name of a northern species); stormy petrel, is *Oceanites oceanicus*, Mother Carey's chicken; "snowy blue-nosed petrel" is probably snow petrel, *Pagoderna nivea*; "Procellaria gigantea" is the nelly (or nellie), *Macronectes giganteus*; blue-eyed shag is the cormorant, *Phalacrocorax atriceps*; sea pigeon, is the sheath-bill, *Chionis alba*. Captain Alexander S. Palmer, on a sealing expedition in the *Penguin* in 1827–1828, told of encountering Captain Foster of the *Chanticleer* at Port Hatches, 26 Oct 1828. He was able to guide the *Chanticleer* to a safe and comfortable anchorage, an act of courtesy that was graciously acknowledged in a message that Foster drafted and gave to Palmer (E.S. Balch, "Stonington Antarctic explorers," pp. 484–485).

46. I have found virtually nothing on Joseph Henry Kay. He listed himself as a midshipman in the Royal Navy in his journal. Scott Polar Research Institute, holder of this journal, knows little else about him. They have a couple of letters, one of a personal nature, signed Henry Kay, to John Franklin, 23 Sep 1847, another signed Joseph Henry Kay (probably the same person), to Sir James Clark Ross, Van Diemen Land, requesting his recall; in the former letter, he blames Ross for not effecting his promotion. The Institute Library has two additional letters from Mary Anne Kay, 1826, 1848, to John Franklin, her uncle. It appears probable that Joseph Henry Kay was related to Franklin. Smith Island, named for William Smith, discoverer of the South Shetlands (Stewart, p. 927), is located 63° S, 62° 30' W; it is 45 mi W of Deception Island and separated from it by Boyd Strait; it is 19 mi long, 5 mi wide; it was discovered by the sealing vessel *Hersilia* 18 Jan 1820, being called at first Mount Pisgah Island; the name Pisgah is now restricted to one of its high points. For William Smith, called by John Stewart (*Antarctica*, p. 927) "in a way, the most important man in Antarctic history," I have found nothing of substance beyond this comment.

47. Kay is sometimes overprecise, sometimes ambiguous, with regard to species of birds. The "silvery gull" deserves comment as apparently differing from a black-

headed form noted by other observers; it would not be the northern form that he names here. He again mentions "Eglet" and "Nelly" in the same breath but subsequently appears to distinguish them satisfactorily into skua

("Eglet") and giant petrel or fulmar ("Nelly"). What species of penguin he viewed is still not clear. The tern with a red beak is clearly *Sterna vittata*, the Arctic tern. The "white pigeon with parrot's beak" is the sheath-bill.

JAMES EIGHTS: CHILE AND THE RETURN FROM THE SOUTH

In what may be called the received view, there is not the slightest indication that James Eights did not stick with the *Annawan* or the *Seraph* after their brief Antarctic tours and the futile search to the westward for nonexistent islands. K.L. Bertrand tells the story authoritatively and I know of no one who disputes him.¹

To summarize Bertrand: The crews found poor sealing in the South Shetlands and the voyage of discovery to the westward was an exhausting one — and quite enough exploration for them. They were tired and at risk of scurvy by the time they reached the coast of Chile in early April 1830. When it was proposed that a little sealing along the Chilean coast be followed by an extended exploration of the Pacific Ocean, the crews threatened to mutiny. As a sop to exploration, Jeremiah N. Reynolds and John F. Watson “were put ashore and made a successful trek through the territory of the then warlike Araucanian Indians, with whom they were able to deal on peaceful terms.”

When there was again talk of more exploration, the crews refused to go. Captains Pendleton and Nat Palmer (apparently with reduced crews) turned to sealing alone. They “ranged as far to the northwest as the islands of San Felix and San Ambrosio, where they had to be content to take the skins of the hair seal rather than the more valuable fur seal.” Reynolds remained in Chile, for the nonce, and in October 1832 became “private secretary” to Commodore Downes of the U.S. frigate *Potomac*, then on an extended Pacific trip. Few

dates are cited and the length of Reynolds and Watson’s tour among the Araucanians is not given.

The *Penguin* sealed along the Chilean coast and around Cape Horn and sailed for Stonington from the Falkland Islands on 26 April 1831, arriving there on 22 June. “The *Annawan* left Talcahuano, Chile, on May 23, 1831, and arrived in New York on August 6,” after a stormy rounding of Cape Horn, where three boats were lost. Capt. Pendleton reported, upon his arrival in the *Seraph* 8 August 1831, that six members of his crew had deserted. In all this, Bertrand does not disclose the fate of Watson and one is left to envision an extensive year-and-something of southeastern Pacific travel for James Eights.

The true outcome was both simpler and more complex than Bertrand indicated. Definitive records are few. Next to nothing is known of Eights’s experiences in Chile, although that little deserves its due. Further, it seems fair to outline briefly what is known of the trek of Reynolds and Watson among the Araucanians. In due course, the return of the brigs *Annawan* and *Seraph* will be accounted for a little more fully, although the fate of the latter is of no concern to us and that of the former has less interest than might previously have been imputed to it.

It needs to be reemphasized that Antarctic discovery held little charm for Capt. Pendleton (and, we may safely assume, for at least Capt. Alex Palmer). Pendleton made that clear in his memorial (with Edmund Fanning) to the U.S.

Congress. Pendleton wrote to Fanning 15 September 1831, ignoring completely the stay in the South Shetlands. He dismissed Antarctic discovery and talked only of "a lengthy cruise (of much anxiety and suffering,) towards the icy region, for the discovery of new lands to the westward of Palmer's land, and in the search after the land to the southwestward of Cape Horn, said to have been seen by Captains Macy and Gardiner, &c., during all which time we were so unfortunate as not to make any discovery; and, except occasionally a sight of birds, seals, drift, &c., we had no encouragement of passing in the vicinity of any land. Our crew, now being much worn down by fatigue, and being almost constantly wet in this region of rough sea, and cold rugged weather, with alarming symptoms of that dread disease, the scurvy; it was judged judicious to bear up, and proceed for the coast of Chili to refresh and recruit our men, also to replenish our wood and water. We arrived on this coast early in May, where, by their late sufferings, and our ill luck in not making any discoveries, and of course not having collected any thing in which they could share in as a compensation for their late hardship and labor, (their pay or compensation being mainly, as you are aware, in a lay or share out of what should be collected during the voyage,) they now became uneasy, and began to show a spirit of disobedience to their officers, and mutiny; indeed, so much so, as to make it necessary for Captain Palmer to put into Valparaiso with the *Annawan*, and deliver a part of his crew over to the United States' Consul, which was the cause of such a delay, that it made it too late in the season to enable me to accord with your instructions, and to proceed to the unexplored parts of the northern Pacific coast of Japan, eastern coast of Asia, &c. In this disappointment and dilemma, on a consultation with Capt. Palmer, and the scientific gentlemen [note this! — to Pendleton, the scientific corps by this time consisted only of Reynolds and Watson], it was resolved to proceed with the vessels to the coast of Araucania, and endeavor to obtain a friendly communication with that nation which modern history had so little knowledge of; and, if so fortunate as to succeed,

and, also, in the mean time, to be enabled to procure a good collection of furs, seal skins, &c., on its coast, to ship and forward home; by then, the next season came about for proceeding to the North Pacific; this would, it was thought, tend much to make our men contented, and to proceed in the spirit of harmony and perseverance to the northward. Accordingly, we shaped the course of the brigs for that coast; and on the 22d of July, we landed Messrs. Reynolds and Watson of our scientific corps, at the river Arauco, with a view to enter the Araucanian country, and procure, if possible, a friendly intercourse with the head or leaders of this noble and warlike nation. We then, after again recruiting our wood and water at the island of St. Mary's, (our men still so restless and uneasy, that a number of desertions here occurred,) proceeded to the Archipelago, in the extensive bay or gulf at the southern extreme of the Araucanian coast, to make surveys and collections; during the time, Messrs. Reynolds and Watson were employed on their attempted embassy, in which their trial proved successful, beyond our most sanguine expectations; and learning from the Araucanian fishermen at the Archipelago, that Messrs. Reynolds and Watson had passed into the interior of their country, where no stranger had been permitted to come for 150 years past, and had been friendly received, and were then on the bank of a river in about the latitude 39° south."

When they arrived at that point, they were met by armed Araucanian warriors determined to oppose their entry into their country. However, as soon as they were able to convince the head chief that theirs were "the vessels that brought Messrs. Reynolds and Watson to their country, their arms were promptly laid aside, and we were received as friends.... They are certainly a very noble race; and, by the evidence of our reception and observations, it appeared that if an agency from our Government was sent out, now the door to a friendly understanding is opened, it would find but little difficulty in establishing a friendly and important commercial trade with this nation. The resources of their country is vast indeed; and abounds in wool, hides, tallow, rich furs, skins, &c;.... Not

being able, on account of their distance up the river, to communicate with our scientific gentlemen, we, therefore, returned to our collections of seal skins, &c. with the view to the content of our men; calculating, agreeable to our previous understanding and arrangement, in April [1831], to ship all [the cargo, that is] home from Talcuanna [!] or Valparaiso, and receive Messrs. Reynolds and Watson again on board; recruit our provisions, and refit our vessels, in the full hope then to be able to proceed, with contented crews, in the spirit of perseverance and harmony, to the Northern Pacific, agreeable to our instructions, and when the season came about, to then proceed to the south again. But on our arrival at Talcuanna, to my utter mortification, I was doomed to experience all our expectations overturned and blasted, by the conduct of our crews, in mutinous, disorderly behaviour; and with such a stern determination to desert, which forced me, after a consultation with Capt. Palmer, to adopt the only expedient left; which was, to return home, while we had a sufficient number to navigate our vessels, relying on the liberality of our Government for a compensation, for the national good we have, at least, tried our best to do, with the limited and shackled means in our power, as well as in consideration for our loss and sufferings.

"I take the liberty, also, to remark, that I am now convinced, in the experience of this enterprise, that an exploring expedition, by any private means, can never produce great or important benefits."

Pendleton went on but this is the meat of his letter. It ends, for us, with two significant developments. First, a reemphasis that only Reynolds and Watson and their Araucanian adventure counted: "Messrs. Reynolds and Watson, in their perseverance, &c., deserve the favor and thanks of our Government and fellow citizens." And, then, the clearing up of at least one mystery: What had become of Watson? Benjamin Pendleton's letter is signed by himself, "Commander of the Exploring Expedition," and is attested to by "James E. Bleecker, Clerk" and "J.F. Watson, of Scientific corps." Clearly, while Reynolds remained in Chile and went to sea with Commodore Downs, Watson continued to

keep company with the "exploring expedition," but on the *Seraph*, not his original ship, the *Amatuan*.²

Note that the date of this letter was 15 Sep 1831. What had happened since the arrival of the brigs on the coast of Chile after the Antarctic adventure in April 1830?

From James Eights, we have little indeed on his experiences on the Chilean coast. While he collected shells and plants there, as he apparently did wherever he was, a reliable itinerary cannot be established from records of the specimens. For various reasons, it appears best to reserve references to localities to the technical account of his specimens.

Eights's only published reference that proves he was on the Chilean coast is in an essay on "Origin of guano," that appeared in 1844. It is here transcribed in its entirety. His contribution, in quotation marks in the original, is preceded by an editorial comment.

"Concerning the extraordinary fertilizer which is now exciting wide-spread interest in the agricultural world, (and we may add, in the commercial world also, seeing that so many vessels are employed in the traffic,) we are indebted to Dr. James Eights of Albany, for the following memoranda. The opportunities for observation presented by the Expedition — the *first* American Exploring Expedition — in which he was employed as Naturalist, certainly furnished ample scope for judgment on the subject to which Dr. Eights refers:

"'Much has recently been said,' observes Dr. Eights, 'and various have been the conjectures respecting the origin of the justly popular manure termed "Guano," brought in such vast quantities from the numerous islands and headlands of the African and South American coasts; but little or nothing of a definite nature has as yet I believe, appeared in print. All writers on the subject, however, seem to agree in considering it to be the production of some piscivorous birds.

"'As much uncertainty seems yet to prevail, permit me to cast my faggot on the pile, by offering to such of your readers whom it may concern, the substance of some extracts taken from my notes of a voyage, made several years

since to the South Atlantic, Antarctic [!] and Pacific Oceans; and likewise, some remarks from personal observations of at least one of the birds that largely contribute to its formation.

“‘Being moored at the Island of St. Mary’s on the coast of Chili, (latitude 37 south,) I was at an early hour in the morning, called on deck to witness the flight of ‘Shags,’ (*Phalacrocorax graculus*) on one of their fishing excursions to the sea; they’ appeared in such prodigious numbers, that the whole surface of the heavens was almost entirely obliterated from the sight; flying in irregularly formed streams from the main land, from the breadth of but a few feet to that of more than a mile the whole way, extending in a north and south direction along the coast as far as the eye had vision, strikingly bringing to my recollection the highly interesting descriptions of Wilson and Audubon, of the multitude of wild pigeons in some of our western States. They continued in an almost unceasing flight from the time they were first observed, until we were summoned to our mid-day meal, after which time I paid no further attention to their progress.

“‘The favorite resting places of these birds, were the southern headland of the Island, which arose in a precipitious [!] manner from the waters of the sea to an elevation of about ninety feet above its surface, and likewise on the summits of the numerous rocky islets which were every where scattered about the vicinity. Upon examination, these resting places were found to be entirely covered by well characterized Guano, but so firmly compact, and the surface of the rock so completely besmeared with the substance at their uniting edges, that it was next to an impossibility to determine with any degree of accuracy, its relative thickness.

“‘These birds are esteemed as a palatable food, and for the period of three weeks that we remained at this Island, they were daily served at mess for both officers and crew of the ship. Upon examining the contents of the stomachs of several of these birds, we almost invariably found them distended with the bones and the partially decomposed relics of a small species of *Clupea* (Herring,) which range [!] along this coast in immense shoals from the cold waters in

the regions about Cape Horn to the immediate vicinity of the tropical line. These cormorants dive and swim well, pursuing and securing their prey while in the water; ascending in the air to devour it which they do with the greatest facility, tossing it up and catching it again as it descends, they swallow it almost instantaneously in a head foremost direction. From their prodigious numbers, their voracious appetite, and exceedingly rapid digestion, a very large amount of these fishes are daily consumed by them. After having thus gorged themselves with food, they retire to their usual resting places on some projecting headland or rocky islet in the sea, where they remain for hours together, with outspread wings, until digestion has completed its course, when they again proceed to sea to renew the process. It is at such times that the Guano is so copiously deposited.

“‘This species of cormorant has a great geographical range, being found along both continents, from the frozen regions of the north, to the antarctic sea, and of course are not uncommon along our whole Atlantic board, but in consequence of the frequent and copious rains which fall in these latitudes, the guano is unable to accumulate, being dissolved and washed away almost as rapidly as it can be produced.

“‘Penguins likewise, have frequently been mentioned as contributing largely to the formation of guano, but from the peculiar habits of various species of these birds it will be readily seen that but a comparatively small portion of this substance can justly be attributed to them. In the warm climate of the Peruvian coast where this manure chiefly abounds and where rains are seldom, if ever known to fall, these birds are relatively of rare occurrence, but gradually increase in number in proceeding [!] to the south, until the antarctic seas are reached, in the cold waters of which, they in the greatest profusion are found, being not unfrequently observed, covering the surfaces of its numerous icebergs which are every where to be seen drifting along at a rapid rate by the power of the winds and the velocity of the currents.

“‘These birds are also of an aquatic nature, spending the greater portion of their existence

in the open sea, visiting the land only for the purposes of molting, hatching and rearing their young. In the high latitudes where Penguins most abound, guano is exceedingly scarce.

“From the facts here stated, and the circumstance that no piscivorous birds are so numerous in the regions where guano is found in the greatest profusion, as the *Phalacrocorax graculus*, I consider myself fully justified in the conclusion, that it is by these birds that this truly valuable manure is almost altogether produced.”³

A brief recapitulation of the trek of Reynolds and Watson (the “scientific gentlemen” of Pendleton’s letter to Fanning) into the Araucanian country is called for. Since, clearly, it had nothing to do with James Eights, my account will do little more than list relevant documents.

The itinerary of Reynolds and Watson is hard to flesh out. They apparently started inland at the latitude of Isla de Santa María at about 37°S at the river Arauco and explored southward to about the latitude of Isla de la Mocha at about 39°S. By Pendleton’s record, they were left at the former place 22 July. Reynolds reported to U.S. Consul Michael Hogan at Valparaíso, in October (no date given), from Castilio de Antuco, in the Cordilleras, a point reached by following a trail along the river Bío Bío. That was covered by Reynolds’s “A leaf from an unpublished manuscript” which concerns the period of a few days in mid-November in the northern part of the trip. A third contribution appeared in “Rough notes of rough adventure” and concerns the southern part of the trip, near Valdivia. It seems to me that discrepancies had crept into Reynolds’s calendar. Even if the month is correct (and that appears hardly possible, if you consider Pendleton’s admittedly somewhat imprecise proposal to charge the government a total of four months’ expenses while waiting for Reynolds and Watson, picking them up, etc.), the date of *January 15th 1833* assigned to their planting a flag on the summit of the Villarica volcano is still two years out (can it be that the year 1831 is meant?). As to their length of stay by then, Reynolds makes it “near seven months.” The date of 1833 is simply impossible,

for we know from Reynolds’s editorial comment in his account of *Voyage of the U.S. Frigate Potomac, under the Command of Commodore John Downes*, that he shipped with Commodore Downes in October 1832, “just three years from my commencement of my voyage” from New York on the *Annawan*. It appears unnecessary to quote material from the Reynolds pieces. They are personal adventure narratives of little substance, with a few place names casually noted from time to time. No animals are mentioned and the only plant named is the Araucanian pine.⁴

We can now leave Reynolds to finish his journey around the world in the *Potomac*, whose tour was completed in 1834. His role in launching the great Exploring Expedition of 1838, in which Eights was involved to his hurt, was shortly afterwards a monomaniacal concern of Reynolds and any planned account of the present exploration was put aside. But Reynolds has one further claim to fame: While at the Isla de la Mocha, he fell in with a whaling ship, its captain and first mate and their tale of a fabulous white whale, “Mocha Dick.” Watson, we have discovered, had returned to the United States with Pendleton. It is now James Eights’s turn to be brought home.⁵

A few items concerning the return of the *Annawan* must yet be introduced but one item concerning James Eights deserves mention. The tale is pure hearsay but has an interesting ring to it. It goes back to John Mason Clarke and concerns a time when all grain was grist to Clarke’s mill. He obviously knew next to nothing about James Eights when he received a letter from Leon J. Cole, a young student of sea-spiders, a long-ignored species which Eights had discovered and named.

Clarke’s letter of reply of 20 March 1905 has Eights “passing off the scene about 1850”! “Early in life he got into bad habits and on that account it was arranged that he should go as zoologist on the Wilkes Exploring Expedition. One of his contemporaries still living here and formerly a member of our staff has told me that he acted so badly on that trip that when the expedition reached Patagonia he started off to walk home”! That this confuses, in this early

stage of Clarke's interest in Eights, the expeditions of 1829 and 1838 is of little account. If it has any substance at all, it may be a garbled version of Eights's dissatisfaction with the outcome of the scientific prospects of his expedition and its foundering on the Chilean (not the Patagonian) coast. But he can hardly have been classed with mutinous sailors, whatever his parting may have lacked in grace.⁶

Early on, I was worried by references to gifts from James Eights to the Albany Institute during the calendar year 1830 and early 1831, when the *Annawan* was still on its sealing cruise. However, when I weighed in short statements in a letter to John Torrey from Constantine Samuel Rafinesque (6 March 1831) and John Torrey's letter to Lewis David von Schweinitz (26 April 1831), it became clear that Eights had returned long before the arrival of the *Annawan*. Wrote Rafinesque, "I am of course very curious to hear more of the Antar[c]tic living trilobite of Dr. Eights? pray is he in Albany?" And Torrey to Schweinitz: "You have probably heard that Dr. Eights, whom the Lyceum sent out in a vessel bound for the S. Seas, returned last fall without having accomplished much, for it turned out just as several of us suspected, that the expedition was destined, not for discovery & for scientific purposes — but to *catch seals*!"

Clearly, Eights had returned "last fall" — that is, 1830 — and Torrey, in his preeminent standing among scientists at the Lyceum of Natural History, was in a good position to know that.⁷

It was necessary to dig in and see what could be found to prove that Eights was already in Albany before Reynolds and Watson finished their tour of the Araucanian country. My old friend, the Albany *Argus*, let me down. Fortunately, access to the *Albany Evening Journal* turned the trick. On Thursday, 2 September 1830, there was the entry: "The brigs Anawan and Seraph, *discovery vessels* which sailed last year for the Southern Ocean, appear to have forgotten their errand, or concluded it was not worth pursuing. The former was left at Valparaíso by a vessel just arrived at Stonington. The latter had gone to the coast of Peru. — Both

were in pursuit of *seals*. Doct. Eights, of this city, and other scientific gentlemen, attached to the expedition, have returned." For James Eights, it was the end of a trip from Valparaíso to Albany. For me, it was the end of the beginning in getting him home!⁸

Thus, one step forward and two steps into the unknown. What ship deposited Eights and his companions at Stonington? U.S. Customs records of official landings of ships at Stonington have no reference to any such ship. Microfilms of newspapers with marine notices from the New Bedford-Stonington area are nil. U.S. Customs records for the port of New York had no notice of arrival of a ship from Valparaíso prior to 2 September that could be of interest.⁹

I could see no reason to search Boston records, since there would be no sense in Eights then going to Stonington to get to Albany (to some extent, the same argument applies to New York, for he could have taken a steamboat directly to Albany). Yet, I felt that port of New York information might somehow be useful. Besides, I wanted to know how long a sailship of the day might take to get from Chile to a New England port. Therefore, I turned to the *Morning Courier and New York Euquirer*, a daily newspaper (not Sunday, unhappily), with an abundance of marine listings. I found no arrival from Chile that seemed of interest but I did find good references to times required for trips from Chile to New York, a figure often cited in arrival announcements. The trip ordinarily took something in the order of three months: (1) the ship *Rassalas*, from Valparaíso to Boston, took 2 months 20 days; (2) the *Lafayette*, Valparaíso to Baltimore, took 3 months nearly to a day; (3) the *Romulus*, Buenos Aires, 14 February, Montevideo, 4 March, arrived New York 3 May; the brig *Lonisiana*, from Rio de Janeiro to Baltimore took only 27 days but that was a record. Then, pay-dirt: on 1 September 1830, as a news item, *not* in the marine listings: "From Valparaíso. — The brig Bogota, Stanton, arrived at Stonington last Sunday evening, in 105 days from Valparaíso, with 21,000 seal skins, 18,000 hair and 3000 fur skins. The brig Anawan, Captain Palmer, one of the discovery vessels that sailed from this port last year, was at Valparaíso. She

had abandoned the exploring expedition, and was to sail in a day or two for the coast of Peru for seal. She and the schr Penguin, of Stonington, had been to the South Shetland Islands, and taken six hundred fur skins, and obtained a great number of shells, petrefaceous [!], and other curiosities of that country. The brig Seraph, another of the exploring ships had also gone to the coast of Peru after seal. The Bogota left on the coast, April the 1st, brig Sea-Nymph, Nash, of this port, with 8000 skins on board, to sail for New York in a few days. Came passengers in the Bogota, Mr. Eckford, of the U.S. Navy, and Dr. Eyting [!], of the Anawan. There were great dissensions in Chili; and the influence which the clergy had formerly exerted in preserving peace, had been entirely destroyed, and set at defiance by both parties."¹⁰

It was now clear enough that the *Bogota* had arrived (and unloaded!) at Stonington on a Sunday — and it is as clear that one did not interrupt Sabbath worship by employees of the U.S. Customs! Thus, the arrival of James Eights (poor man, his name scrambled again!) at Stonington on Sunday, 29 August 1830.

There was more, this time pinning most of the story neatly together. I turned again to port of New York Customs records and found two references to the *arrival* of the brig *Bogota*, at the port of New York from "South Seas" on 2 September (in both cases, the captain is given as *Swanton*, not *Stanton*); all of which could have nothing to do with the arrival of James Eights and the thousands of sealskins at Stonington, for that had already occurred. The *Bogota* had made its unofficial landing at Stonington on a Sunday, then immediately sailed for the port of New York!¹¹

Before returning to James Eights, a couple of published references to Jeremiah N. Reynolds are worth citing. It is clear that Reynolds was still good copy in newspapers. Just as clear, the U.S. Consul at Valparaíso thought Reynolds alone the qualified scientist with the exploring expedition.

On 12 September 1830, Michael Hogan wrote from Valparaíso to Secretary of the Navy John Branch: "Three seamen who left the seal-

ing brig Seraphim[!], Capt. Benjamin Pendleton, of Stonington, arrived here this morning from the Island Mary's, a little south of Conception, report that the brig Annawan, Capt. Palmer, on board of which Mr. Reynolds and other scientific gentlemen were employed on the double object of exploring and skinning, was at the Island they came from, having been obliged to abandon the idea of making any discoveries, in consequence of the difficulty of keeping the crew in order, eight of whom left her near Pisco, on the coast of Peru, after she left this in May last. They say Mr. Reynolds landed at Aruca on or about the 28th of July, who with Mr. Hampton [!] Watson, of Philadelphia, intended to come by land to this place. Mr. Watson came out as an amateur on the sealing brig Seraph. I feel satisfied of their perfect safety, and am of opinion, that the world will derive more information from the observations and researches of the sanguine, persevering disposition of Mr. Reynolds, than could have been expected, had the project by sea been continued for the time intended to be devoted to it. The Araucanian country is the finest of South America.... "The failure of the *Annawan* is proof that merchant vessels are totally unfit for exploring; ships of war only are calculated for service, requiring discipline and good order." Hogan warned: "Those seas will soon swarm with runaway seamen, who, for support, must become pirates."¹²

That Reynolds was in the public eye the "scientist" of the Pendleton-Palmer Expedition is further emphasized by an exchange printed as late as 29 November 1833, in an extraordinarily long account of the "South Sea Exploring Expedition," drawn from a Philadelphia newspaper and reprinted in the *Albany Argus*. Since the main title has below it the parenthesized phrase "By Request," we may suspect that someone planted the larger part of it, more to promote a new government-sponsored expedition than to make an honest query about scientific results of the previous one. Indeed, better than half the article is unalloyed (and not entirely well-informed) propaganda of one sort or another. The second part of the piece ignores the recent reprinting of Eights's natural history

notes and proceeds to explain why "the scientific notes of the gentlemen of the corps, attached to this [Pendleton-Palmer] Expedition, have not been yet given in print to the public. — Particularly those relating to the Araucanian nation, of which the civilized world has so little historical knowledge;...On inquiry, I learn the following to be the cause of delay.

"Those two talented, persevering, and scientific tourists, Messrs. Reynolds and Watson, who were detached on this daring and arduous service, to explore the Araucanian country, were landed from the exploring brigs, on the banks of the river Arauco. — Each of these gentlemen having retained in his possession a part of the historical notes taken, they could not be put to press until the arrival in the United States of both of them. Mr. Watson, I am informed, returned home sometime past, his health having been seriously impaired, owing to the severity of his sufferings, and the arduous nature of his duties.

"Mr. J.N. Reynolds is at present engaged in the station, as private Secretary to Commodore Downes, on board the United States Frigate Potomac, and will, it is presumed, return home in that ship; when it is contemplated they will put the whole of their notes to the press, in a joint work, for the nation's benefit. ..."13

The time has now come to account for the return of Eights's specimens and for their disposition — unhappily, these are two rather distantly related matters and neither can be dismissed with a well-turned phrase.

It will be recalled that James Eights went off to the Antarctic with the apparent blessing of the Lyceum of Natural History of the City of New York. There was the explicit promise that, *upon his return* — with specimens, obviously! — he would be paid "a sum of not less than \$500." That something of the sort was at least attempted, seems evident from Lyceum Minutes: But did the Lyceum actually pay up? It appears that the egregious Reynolds also made overtures for support: on 28 June 1830, "Dr. DeKay read an extract of a letter from Mr. Reynolds dated from Statenland [the recording secretary had some trouble with that; the letter would have been dated December 1829 or January 1830]

acknowledging the patronage of the Lyceum and promising a joint statement from himself and Dr. Eights on the subject of their discoveries."14

On 6 September 1830, "The President read a letter from Mr. Reynolds at Valparaíso [no date given] announcing the return of Dr. Eights [to the U.S.]. On motion it was resolved to circulate subscription papers in accordance with the resolution passed Oct. 12, 1829" (in regard to the \$500, that is). There may be some mistake here; *perhaps* Reynolds did carefully write (in May 1830?) from Valparaíso warning of Eights's imminent return; maybe, on the other hand, by 6 September 1830, Eights himself had told someone at the Lyceum of his return. In any case, on 13 September, "Dr. Torrey read a letter from Dr. Eights containing a sketch of his observations during his late expedition." It was further noted: "Dr. Eights presents Crustacea found in Cove off Cape Horn, referred to Eights & DeKay" (that is, they were authorized to treat them taxonomically). Further: "On motion of Dr. Torrey it was resolved that the Lyceum subscribe the sum of one [!] hundred dollars under the resolution of Oct. 12, 1829...it being understood that his reports, notes, descriptions, journals and collections be first presented to the Lyceum and deposited there."

Finally, 20 September 1830: "Dr. Eights presents another specimen of crustacea from the South Seas. Referred to Drs. DeKay & Eights." The Lyceum was proceeding cautiously!

Comprehensive histories of the Lyceum (and Academy of Sciences) by Herman Le Roy Fairchild (1887) and Simon Baatz (1990) fail to make anything of Lyceum support of the expedition of 1829. Did the Lyceum get the specimens expected? Did it deliver on the \$500 (or any part of it)? How many specimens did Eights bring back with his own person in 1830? How many had to await arrival of the *Annawan* in 1831? Few definitive answers can be given.

From the Lyceum Minutes, quoted above, it is evident that Eights himself brought back at least a few specimens. Since his return from Valparaíso was possibly precipitate, he is extremely unlikely to have brought back much. He did share some of his specimens, presum-

ably the ones thought new, with the Lyceum (with Eights and DeKay retaining first shot at them). Is it possible that the Lyceum withheld a substantial part (or all) of its promised payment until it had in hand the full number of specimens? Did Eights rebel at that treatment?

Unfortunately, little documentation has been found that provides details of what in fact came back or where it went. No records of *Annawan* manifests upon return have been found. National Archives records give the date of return as 4 and 6 August 1831 (the latter probably being the date cargo was inspected by customs). The *Morning Courier and New-York Enquirer* for 5 August has two items of interest. In the "Marine List" (from miserably poor microfilm): "Brig Annawan, Palmer, of New Bedford, from Talcohuano, 23d May, with seal skins, to E. Fanning, Agent. Left [?], ships Phenix, Gardner, for Nantucket, next day, with 2400 brls oil, Cincinatus, Sayer, New York, in 10 days, 3000 brls oil; Good Return, Terry, N Bedford, 800 [?] brls, on a cruise next day; Gov. Fanner [?], Lawton, of Bristol, E.T. [?] 60 do do [sic?], the only American. The ship Iris, Norton, for N Bedford, with 1100 brls. sailed 10 ds previous. [These entries regularly give ship name, then captain, then destination.] Spoke 28th, lat. 31 S. lon 65 30 Br brig Coriolanus, Fez, fm Trinidad for Plymouth, Eng. The A[nnawan] experienced very heavy weather in coming round Cape Horn; had 3 boats stove and suffered in sails and rigging." In the nonmarine section, same day: "In the brig Annawan, Talcohuano: — D. Messer [or Mercer?]." ¹⁵

K.J. Bertrand says, without documentation: "Upon its return the expedition deposited 13 chests of natural history specimens with the Lyceum of Natural History of New York, and two chests were sent to Philadelphia. Reynolds gave his personal collection to the Boston Society of Natural History, and Eights' specimens were given to the Albany Institute." The nearest I can come to substantiating the main part of this claim is the statement signed by Edmund Fanning and Benjamin Pendleton, dated 7 November 1831: "*Remark.* — Those two discovery and exploring vessels have, during their route, collected and passed to the Lyceum of

Natural History, in the city of New York, thirteen chests of various collections of scientific specimens for the benefit of science, and also two chests to Philadelphia." There is no claim that any of this pertained to work done by James Eights. ¹⁶

What was the outcome of all this? How many of the "thirteen chests of various collections of scientific specimens" — if, indeed, any — stayed with the Lyceum? Two opposite views may be held: They went to the Lyceum where, apparently untouched for thirty-odd years, they burned in an arson fire in 1866 — or, they did not go there at all. If the first, it is certainly incredible that the biological world did not recognize its treasures and name the new species that were represented. I know of a single species of mollusk, a member of the genus *Nucula*, that *may* have come from the Lyceum collection (no proof of provenance has been forthcoming). But, as we shall see, a substantial percentage of Eights' mollusk species were new or noteworthy. It is simply unbelievable that Eights' southern and Antarctic plant specimens would not have been of interest to botanical members of the Lyceum, if they had had access to them. Bertrand seems nearer the mark when he says that "Eights' specimens were given to the Albany Institute," although "given" is not the right word. ¹⁷

As for Reynolds and his specimens, it seems that his communication offering them to the Lyceum came to naught. We find James Eights writing from Albany 9 August 1834 to Amos Binney at the Boston Society of Natural History, shortly after Reynolds's return from his long journey with Commodore Downes: "I returned a few days since from the City of New York, where I met my old friend M^r Reynolds. M^r R. informs me that he has determined on sending his collections to Boston, agreeable to some arrangement made with your society of Nat. History. I saw part of his collection in New York, & deem them highly interesting, and the Lyceum there, will, no doubt feel some mortification, in having permitted such a requisition in science to pass beyond their reach." Recall that Eights himself wrote to Benjamin F. Butler, when beginning his campaign to go on the

exploring expedition of 1838: "Although from the almost entire absence of any conveniences for collecting & preserving objects of Natural History, I was deprived of the power of doing as much as I could have desired, yet the collections then made by me & now in the Museum of the Albany Institute are such as I can with honest pride, point to, as proof [of] industry & skill." The Lyceum in New York City seems not to have been involved in housing his collections. While I know of no detailed catalog of Reynolds's contributions to the museum of the Boston Society of Natural History, the *Journal* of that Society listed among its donors in 1834 several items of great interest from J.N. Reynolds.¹⁸

As for receipt by the Albany Institute of a substantial number of James Eights's specimens from the Pendleton-Palmer Expedition (although hardly thirteen chests!), the evidence is convincing. I suspect Eights was unable to come to satisfactory terms with the Lyceum.

It might be accounted a trifle strange that no mention seems ever to have been made in Minutes of the Institute that Eights was away on the voyage of discovery — or that they were glad to have him back. He returned to Albany unheralded and then fell into his previous pattern of contributing various items to Institute collections (and not paying annual dues, something that his father did regularly). As early as 12 January 1831, Joseph Henry noted that James Eights had contributed to the library during the past year (that is, after his return in early September). Eights made fairly regular donations of specimens during the years 1831, 1832, and 1833. In January 1834, he served on a committee to make the annual report of the Curators, even though he was not a curator. Unfortunately, notices of contributions in the Minutes were rarely specific as to number or identification of items and even the surviving "Catalogue of Properties" is not entirely satisfactory.¹⁹

Ignoring for the moment donations not of Antarctic or southern provenance, it seems to have been 28 April 1832 before anything of interest was entered in the "Catalogue": "Gourd containing Cayenne Pepper, Valparaiso (from Jas Eights)" (a donation to the Institute by James Stevenson). In February 1833, there was

submitted an elaborate report on fund-raising during the years 1831 and 1832 (no precise dates mentioned), a total of \$410 having been raised from 19 subscribers (\$200 came from Stephen Van Rensselaer). "The Curators in disposing of this liberal subscription, directed their first attention to obtaining the natural history Collections made by M^r James Eights, in South America & the South Sea Islands — They purchased them for the sum of \$100. The Collections contain many new specimens [=species], & on the whole are very interesting & valuable. It is hoped that during the ensuing summer, detailed reports on the various departments included in it, will be offered to the Institute." In the detailed account of expenditures, entry No. 5 is \$100.00 "To Do (= Ditto = Cash) p^d Jas Eights for his South Seas Collection." Twenty-six bottles to contain Eights specimens cost \$6.25; bladders to cover them, twelve and a half cents. For once, a notice in the *Argus* is more helpful than Institute records, there being on 9 April a notice of Institute Minutes for 21 February: "The Curators reported their purchases and expenditures in detail. The collections made by Mr. James Eights in South America of plants, shells, rocks, and various marine animals had been purchased."²⁰

Matters must have moved unevenly; few details of transactions now exist. On 10 July 1833, there was "A Special Meeting of the Institute," at which "Mr. M.H. Webster read a description [communication is lined through] of a new Curstacious [!] animal found on the shores of the South Shetlands Islands with remarks on their Natural History — By James Eights." In October 1833, the collections were enriched by "African Locust blown on board the vessel by the North East Trade Winds, 300 miles from the Coast," from James Eights. In May 1834, 62 named specimens of shells, given in exchange for duplicates of Eights's "South Seas" shells, were received from Hugh Cuming of London by way of corresponding member Obadiah Rich. At the same time, Cuming sent back 84 shell specimens (these had been submitted in duplicate — the duplicates being retained, as noted), named as far as possible, for many of them were new. It was 23 March 1837

before the Minutes recorded receipt by L.C. Beck, Botanical Curator, of Eights's named duplicate plants from W.J. Hooker. If additional reports on Eights's "South Seas" specimens were communicated to the Institute, neither Minutes nor "Catalogue of Properties" record them.²¹

Before carrying on with the life of James Eights in approximately the order in which he lived it, some technical chapters must intervene. They account for his southern and Antarctic specimens of animals and plants.

NOTES

1. K.L. Bertrand, *Americans in Antarctica*, pp. 154-155.

2. A completely chronological narrative becomes impossible at this point. Before taking brief notice of the explorations of Reynolds and Watson and all that is certainly known of James Eights's Chilean stay, it is necessary to document some parts of the above story. Benjamin Pendleton had already brushed fur the wrong way in Congress when he tried to claim recompense for losses sustained when he acted upon Secretary Southard's vague directives to prepare a vessel for the ill-fated Adams Exploring expedition. Although the House agreed (C.P. White, "Benjamin Pendleton," 11 May 1830) with him, a negative decision in the Senate (R.Y. Hayne, "Report...adverse to claim of Benjamin Pendleton, 6 April) had already killed the claim. E. Fanning and B. Pendleton renewed their battle in 1832, documenting losses of their private explorations of more recent date. Pendleton described his efforts to carry out what he and Fanning deemed work in the interest of the United States in the Antarctic and on the Chilean coast and added various severally dated letters, estimates, and assertions in regard to expenses, claims for losses, etc., in: "Memorial of Edmund Fanning and Benjamin Pendleton" (18 Jan 1832), pp. 205; and "Memorial of Edmund Fanning" (1833), pp. 8-10. Fanning, *Voyages* (1st ed., 1833), pp. 478-488, repeated most of the previous memorials and his title page makes much of "the report of the commander of the first American exploring expedition, patronized by the United States Government, in the brigs Seraph and Annawan, to the southern hemisphere." Unlike the second edition of Fanning's *Voyages* (1838), which reprinted Eights's statement on natural history, the Pendleton-Fanning works of 1832-1833 fail utterly to notice Eights's existence. Whether this was out of personal animosity on Pendleton's part or simply reflected his lack of acquaintance with Eights and his work is not clear. To show the emphasis upon Araucanian exploration, note that in Doc. 61 (1832), p. 5, expenses were added for "Messrs. Reynolds and Watson in exploring the Araucanian country, for Indian presents, &c.," \$2,420. On p. 6, he listed the national share of costs for "Five scientific gentlemen" at \$40 each per month, totalled \$200 per month; victualling 15 offices and scientific gentlemen per month came to \$270 (thus was Eights charged for but not honored by name!). The landing of Reynolds and Watson at the river Arauco 23 Jul 1830 became an important date;

it cost two and a half months' expenses (\$5,580) to maintain the brigs while waiting for Reynolds and Watson to finish their exploring, etc.; and additional one and a half months' expenses were needed to cover the time required to return and pick up Reynolds and Watson.

3. J. Eights, "Origin of guano" (1844). Eights was too restrictive in supposing that cormorants alone were responsible for guano production; his notion of cormorant nomenclature need not detain us here; he was on sound ground in regard to the role of arid conditions (coupled with colonial life of an abundant animal) in guano production — both bats (in caves) and seals being notable accumulators of guano under favorable microclimatic conditions. The classic account of guano production worldwide is a great monograph by G. Evelyn Hutchinson, "The biogeochemistry of vertebrate excretion," 1950. The present account is of immediate interest in telling us that Eights did in 1844 have notes of some sort from his travels and that his group spent three weeks at Isla de Santa María. For a primitive panoramic view of that island about the year 1610, see F.A. Encina, *Resumen de la Historia de Chile*, Fig. 130, p. 191. The island is described by Blackie, *Gazetteer*, 2: 298: 37°2'8"S. 73°34'15"W; 2 or 3 mi off Point Lavapie, opposite the entrance into Arauco Bay.

4. Cited in evident order, the pieces by Reynolds are: "South America. — Mr. Reynolds' letter. Castilio de Antuco, Oct. 1830"; "A leaf from an unpublished manuscript," 1839 (this is followed, pp. 413-415, by a spirited defense of Reynolds, alleging his shabby treatment in being denied a berth on the Exploring Expedition of 1838); and "Rough notes of rough adventure," 1843 (see p. 707 for the date of 15 Jan 1833 and p. 715 for claim that he and Watson had been nearly seven months in Araucanian territory). By "Arauco river," Pendleton meant the bay on the coast opposite Isla de Santa María. Valdivia is the capital city of the province of the same name, 39°49'S. 73°15'W (Blackie, 2: 1155-1156); note that "Araucania" was still an independent country as late as Blackie's time (ca. 1850; see 1: 190). There is a beautiful map of the region dated 1771 in Encina, *Resumen de la Historia de Chile*, Lam. III. Antuco is a valley and volcano in the Chilean Andes, 140 mi east of Concepción, about 26°50'S. 70°40'W; the volcano towers to an elevation of 16,000 ft. Blackie (1: 170) says the valley "is remarkable for the mildness of its climate, and the beauty of its plants and flowers." The river Bío Bío (Blackie, 1: 409) is the largest stream in Chile and enters the Pacific at Concepción, 36°49'30"S. 73°5'30'W; at that time it formed the northern boundary of Araucania.

5. Reynolds's "Mocha Dick: or the white whale of the Pacific: a leaf from a manuscript journal" first appeared in 1839. It is supposed to have inspired some parts of the classic tale of Herman Melville's *Moby-Dick*. Reynolds's version has appeared several times.

6. J.M. Clarke, letter to L.J. Cole, 20 Mar 1905; N.Y. State Archives, BO 561, Box 11. The still-living contemporary, formerly on the staff with Clarke in the State Museum, was Ebenezer Emmons, Jr. (1822-1907). This is, in any case, a new slant on Eights's "bad habits" (excessive drinking, I have little doubt), some reference to which will surface from time to time. But any connection to Patagonia or to Wilkes is out of the question. How the family managed "to get Eights on an exploring expedition" is not further explained. Whether the story had earlier currency or consequences is not clear. (Did Pendleton resent Eights's

abrupt departure or did Wilkes somehow learn of it and therefore take him to be unreliable?)

7. Rafinesque to Torrey, Medical Center Library, Duke University; seen courtesy of Charles Boewe; Torrey to Schweinitz, *The Correspondence of Schweinitz and Torrey*, p. 247. Torrey's statement need not be thought derogatory to Eights personally; the latter felt the same way about the expedition.

8. *Albany Evening Journal*, Anon., 2 Sep 1830. Eights was not long in airing his feelings about the failure of the expedition, since the italicized words would hardly have come from anyone else in Albany. That Eights was accompanied at least to the point of debarkation by the "other scientific gentlemen" is news but can hardly be the whole truth. It can refer only to the two as yet unnamed assistants sent along to help Eights, Watson and Reynolds. While Eights left no impression of his visit to Valparaíso, it is still worth looking at a contemporary view of that city (Encina, *Resumen de la Historia de Chile*, Lam. VII); for a note on the city, see Blackie, 2: 1161-1163; it is located at 33°1'56"S. 71°41'45"W; its population in 1847 was about 40,000.

9. I have been patiently helped through many difficulties by James K. Owens, Director, National Archives, New England Region, Waltham, Massachusetts, where Customs records for the New Bedford area are kept. He checked — then rechecked — Customs records in regard to a possible arrival in the time frame required here. Arrivals at the port of New York from Valparaíso for the critical period were studied in U.S. National Archives microfilm records M1066, Roll 3 (see Note 11).

10. *Morning Courier and New-York Enquirer*, Anon., 1 Sep 1830. Whether any of these skins were being carried by the *Bogota* for the *Annawan* or *Seraph* is not clear; it appears likely, considering context, that the "great number of shells, petrefactions, and other curiosities" were left aboard the *Annawan* for later delivery and not on the *Bogota*, although I suppose this cannot be ruled certain.

11. Pertinent Customs records for the port of New York are on National Archives microfilm M1066, Roll 3. Customs records are evidently in error in regard to the captain's name: I am told by James K. Owens that the *Bogota*, Charles Stanton master, left New London for a voyage to the South Pacific on 7 Oct 1828.

12. From the *Albany Argus*, Anon., 24 Dec 1830 (copied from the *Washington Telegraph*); from Eights's own hometown paper, not a word about his role in scientific exploration of the southern end of the world! Hogan was in error to suppose that Reynolds and Watson were to explore from the Araucanian country to Valparaíso; they went in the opposite direction from their landing place. Since Eights left Valparaíso on or about 18 May (it took the *Bogota* 105 days to reach Stonington on 29 August), it seems likely that he had not been on the *Annawan* when it sealed at Pisco, on the Peruvian coast, where the seamen deserted. For Pisco, see Blackie, 2: 639 (13°43'S. 76°17'W). Michael Hogan, a long-time New York resident of Chile, was U.S. Consul in Valparaíso "1823-1834?" (W.B. Smith, *America's Diplomats and Consuls*, p. 176). Hogan provides yet another characterization of Watson (never mind the "Hampton"), as "an amateur" from Philadelphia; perhaps a reflection of something Reynolds had said to him.

13. "South Sea Exploring Expedition," Anon., 29 Nov 1833. One wonders who hatched up this one!

14. These and immediately subsequent notes are from Minutes of the Lyceum, kindly supplied by the New York Academy of Sciences.

15. Talcahuano is a Chilean seaport near the city of Concepción (Blackie, 2: 1025, spells the name Talcaguana, or Talcahuana; it was credited by him as having the best anchorage on the Chilean coast). *Morning Courier and New-York Enquirer* (country edition), 5 Aug 1831; National Archives, letter, 2 Oct 1992. The National Archives, which has port of New York Customs records, can locate no crew lists or cargo manifests for the brig *Annawan*, either outgoing or incoming (letter, 30 Apr 1992). It seems likely that records of the return were somehow lost early on, for A. Howard Clark ("The Antarctic fur-seal and sea-elephant industry," p. 450), in a full accounting of sealing ships in 1887, mentions the departure but not the return of the 'Annawan.' I have been unable to identify D. Messer.

16. Bertrand, *Americans in Antarctica*, p. 151; the same information is to be found in V. Ponko, Jr., *Ships, Seas, and Scientists*, pp. 6-9, 233; "Memorial of Edmund Fanning and Benjamin Pendleton," 1832, p. 7. Maybe the two chests for Philadelphia were private collections of Watson.

17. Many authors refer to the arson fire of 1866 that destroyed the Lyceum's collections; see H.L.R. Fairchild, *A History of the New York Academy of Sciences*, pp. 50, 106. The type specimen of the South Shetlands species of *Nucula* will be accounted for later; it may have been among specimens brought back by Eights personally. Eights did not precisely "give" his specimens to the Albany Institute. Considering the hundreds of papers on natural history, many of them on shells, that appeared over the years 1817-1865 (and beyond) in Lyceum publications, it is highly likely that someone would have jumped at the chance to name Eights's species, had they gone to the Lyceum. I conclude that they did not go there.

18. Eights's paper was on the remarkable pycnogonid or sea-spider, *Decolopoda*, that only in this century gained him his deserved fame. I quote from JE's letter to Binney by permission of the Museum of Comparative Zoology Archives, Harvard University, courtesy of Robert Young. JE deposited a specimen of the animal in Boston as well (it is now at Harvard's Museum of Comparative Zoology). Among "Donations" to the Boston Society of Natural History in 1834, see its *Journal*, Anon., 1837, pp. 521-522: "Two gigantic Galapagos Tortoises (living) weighing near three hundred and twenty pounds each," from Capt. John Downes (U.S. Navy); "An herbarium with fifty-one species of plants from Chili and fifteen from the Galapagos Islands," from J.N. Reynolds; "A sheet of colored Drawings of rare Fishes taken at Charles and Galapagos Islands," Reynolds; and (October) "Four hundred and forty-four Birds' skins, from Chili, Peru and South Shetland Isles [note this!] — Botanical specimens from Chili, Peru, Araucania, and the Galapagos Islands — several Boxes of Minerals and Organic Remains, from the Southern Andes — a large and valuable collection of Shells, comprising many rare specimens of *Bulimus* and *Chiton*, from Chili and Peru — Nests and Eggs of various South American Birds — Colored Drawings of numerous Insects, Fishes, Fruits, &c., collected in the Pacific Ocean and South America," from Reynolds. It is hard to know where to begin shedding tears. Minimally, what a shame that Eights and Reynolds did not get their act together and follow up on the work envisioned by James Eights in his letter to

Binney! His drawing of the pycnogonid, he wrote, was "one of a number I have on hand, & which I intend as a scientific appendix to M^r R's forth coming journal of a voyage to the S. seas &c." It may be noted that not all the Reynolds material was collected by him on the Palmer-Pendelton Expedition. Perhaps Commodore Downes favored the Boston repository. No Reynolds (or Watson) archival material can now be traced in holdings of the Museum of Science, Boston, or in the Museum of Comparative Zoology, Harvard University, heirs of the old Boston Society of Natural History. See letters from Carolyn Kirdahy, Museum of Science, and Robert Young, MCZ Library (both 1997). Botanical and zoological specimens from the Society, if retained, will have been dispersed in Harvard University collections.

19. I have made a careful examination of Albany Institute Minutes, 1824-1857, a bound volume in the AIHA McKinney Library. More details on acquisitions are to be found in "Catalogue of the Property of the Albany Institute; since its formation May 5th 1824." This volume proved rather elusive but turned up under the catch-title of "AI / 1824-1838 / The Collections of SPUA and ALNH" (AIHA Archives Box 4.1.4).

20. The finalization of the purchase is noted in the Minutes for 7 Mar 1833; the detailed itemization which was then reported, is filed in McKinney Library as: DE 563/V/2g/Treasurers' Reports. See also Albany *Argus* 9 Apr 1833.

21. As indicated, Eights made donations not identified, so additional "South Seas" specimens may have been become Institute property. The *Argus*, Anon., 10 Jun 1834,

noticed the exchange of shells: "Since the 1st of January, 132 volumes and 12 pamphlets, have been added to the Library, and 98 specimens to the Museum. A duplicate set of the shells collected by Mr. James Eights (on the coast of South America, the Gallipagos [!], &c., and which, with the remainder of the collection, were purchased by several of the citizens of Albany, for the Institute) was some months since sent to London. They have been examined by skilful conchologists there, and more than half are pronounced new and undescribed....The Institute have duplicates of several, and are willing to exchange them for shells not in the collection." (The suggestion that JE had collected on the Galápagos can be ignored; reference is to shells exchanged in return for his.) The *Argus* also reported in some detail on the named shells that had been received from Cuming, failing to notice that they were in exchange for Eights's duplicates. Later chapters will consider in detail the shell and botanical specimens. Hugh Cuming will be given his due in the chapter on the shell collection. AI corresponding member Obadiah Rich (1783-1850) was an accomplished bibliophile and bookseller, buying books for institutions, etc. He was in London with his business 1829-1834 (and later); see G.B. Utley, 1935. Connected notice of Eights's relations with the Institute over the following years will be given later. Aside from occasional donations, his next serious connections with the Institute came with its resurrection in the 1850s, after a stagnant period of years. At that time some attention was again paid to Eights's southern and Antarctic work but it seems best at this point to postpone further mention of it.

SOUTHERN AND ANTARCTIC PLANTS OF JAMES EIGHTS

While he may have been unaware of his fame, several of James Eights's southern and Antarctic plants were credited to him in the decade following his voyage. Southern and Antarctic botany loomed large in those days. In Eights's case, he owed a special debt to the incredible Sir William Jackson Hooker and his admirable son, Joseph Dalton Hooker. How his plants came under their purview has frequently puzzled historians of Antarctic science. This chapter considers Eights's plants, how they got where they are, and how they fared along the way.¹

It may seem odd that Eights so assiduously collected plants, yet made no effort to name them himself or even to note what he thought might be new species. The general account of Eights's return and the disposition of his collections will not be repeated. We first find a specific notice of his plants in April 1834 (no day cited), when Albany Institute Minutes record: "The Curators of the Albany Institute desirous of rendering their collections available to the Cause of Science do hereby agree that a complete set of the specimens in botany purchased of James Eights be sent to Dr W.J. Hooker of Glasgow, for the purpose of having them properly named & described." It was signed by T. Romeyn Beck and Lewis C. Beck.²

The first result of this exchange was a letter fired off to James Eights, via L.C. Beck, from W.J. Hooker. Whether it really reached Eights is unknown, but a somewhat mutilated letter at Albany Institute shows W.J. Hooker's keen

interest in Eights (and his total misunderstanding of Eights's standing as a collector of plants from foreign places). Unhappily, the first sheet of the letter was written on both sides and, apparently, the letter was cut open in such a way that rectilinear segments in the upper right and lower right corners of page one and (thus) the upper left and lower left corners of page two have been lost. The writing is now faded and worn, so some uncertainties (indicated by queries or dashes in square brackets) about a few words remain. The blank areas on this page represent areas of the sheet that have been lost.

It was addressed: "D^r Eights / Care of D^r Beck / Professor of Chemistry [—] / Albany / State of New York."

Glasgow University / Dec^r 9 [?] 1834
Sir

I had scarcely sent my letter the Post Office for D^r Beck, [—] thank him for some of your from the Pacific, which [?] he was [?] kind enough to send me & to offer some remarks upon them , t[han?] I received a visit from Mr McNab on his return from the states. From him I learned that you had it in contemplation to have sent me a parcel [?] yourself & If as I have reasons to believe, of the Pacific, I am anxious to tell you how very acceptable they will be to me & that I shall be most happy to make any returns from [for?] them in my power. In the Islands of the whole of South America I am much interested; for I am

[—————] [con-]
tributions towards a more [—————]
Flora of that country; & I am
desirous of getting as many [?] &
specimens as I possibly can

[end page one]

extreme southern coasts.
nine [?] plants you must have col-
During your interesting voyage,
not help [?] confessing to him my
that you might visit again
some distant regions, & still more further the
cause of botanical science, by collecting plants
extensively.

I wish you & Dr Beck would encourage
some one to accompany the Fur-trading [—————]
] as high as possible in [line nearly completely
lost in fold; seems to say in part "your great
west & [—————]" to the Rocky Mountains
above the sources of the Missouri, [—————], &
to the south of that chain, more is to be done in
Botany than in any other part of N. America, &
the most

collections might be made.
any persons in Europe as well
America [————] study plants
Herbaria, that will direct
imens of plants from the less fre-

[end of page two]

quented parts of the world here [?], with [————]
at least a certain value, like any other merchan-
dize, & from Mexico, Peru, Chili, N. Holl^d[,]
Cape of Good Hope &c. I pay [?] £2 the hun-
dred species. And in these various countries &
many others besides there are many persons get
a living by collecting & drying plants.

Mountain-plants, too, like your Straits of
Magellan plants, have the advantage of going in
a very small compass & are thus the more
portable.

I understand you are acquainted with
Entomology as well as Botany[.]. My second son
is a very zealous [?] Entomologist but of N.
American Insects he has, at present, only a few
from the extreme southern states. Are there any

persons in your part of America who collect
Insects for sale: & if so, what is the price of
them? Pray excuse my thus [?] addressing [?]
you & believe me to be, Sir,

Your faithful & obed^t Serv^t
W.J. Hooker."³

There is a memorandum, probably in L.C.
Beck's hand, dated 1836 (incorrectly catalogued
as 1830, since the "tail" of the number 6 is indis-
tinct), "List of Eights' Plants named by Hooker
in his Companion to the Botanical Magazine."
The plant names, eight in number, were copied
from two issues of that periodical published in
1835. Interestingly, three of these were mistak-
enly credited by Hooker (and Arnott) to "Dr.
Beck," but in Beck's note are properly interpret-
ed as Eights's specimens. In my summary list of
Eights's plants, some attention will be paid to
lapses in this Beck list as well as to other mat-
ters.⁴

In the Albany Institute's Minutes for 23
March 1837, there is a short notice: "Dr. L.C.
Beck reported that the duplicate specimens in
the botanical collection purchased by the
Institute Sometime since from Dr James Eights
had been forwarded to Sir William Jackson
Hooker of Glasgow, who had named most of
them & returned a catalogue of the names
which Dr Beck submitted to the Institute
together with all the specimens arranged in
port folios & properly labelled." It is not clear
what species Beck refers to. Not one of the eight
species in the just mentioned list is now to be
found among Eights/Beck specimens in the
N.Y. State Museum Herbarium.⁵

It thus appears that there were then speci-
mens of Eights plants in an Institute collection,
as well as in Beck's personal collection (probab-
ly duplicates of the main group for which he
had swapped) — and that it is the latter alone
that has come down to us. Since this catalogue
of 1836 concerns species not present in the Beck
collection now at the State Museum, it appears
that the Institute's herbarium had been
destroyed before residual collections were
transferred to the State Museum in 1891.
Because of this ambiguity, even though it post-
pones a discussion of the plant specimens, the

history of the transfer of the Beck herbarium to the State of New York Natural History Cabinet deserves immediate notice.

The first generally public notice that the State Herbarium included the Beck herbarium, with its Eights specimens, is to be found in the Torrey Botanical Club survey of institutional libraries and herbaria in 1876: The State Herbarium held specimens of about 1,600 species of phanerogams and about 2,500 cryptogams (higher and lower plants). A part of this, but kept separate (and not included in the above figures) was the herbarium of L.C. Beck, with more than 3,000 species of phanerogams and more than 600 cryptogams. "The specimens have been derived from various parts of the world, and among them are the types of several species. Not the least interesting specimens are those collected by Dr. James Eights in the southern part of South America and the islands of the South Pacific Ocean."⁶

Two items are pertinent here, both of which have been published, although hardly in the public press. On 2 February 1857, among various dispensations of monies by the State Cabinet of Natural History and the Historical and Antiquarian Collection, there is the entry: "By cash paid Mrs. L.C. Beck for the Herbarium of the late Dr. Lewis C. Beck ... \$400." In 1865, Chancellor John V.L. Pruyn, of the University of the State of New York (ultimate keeper of the State Cabinet), noted that the Herbarium of L.C. Beck, now in the State Cabinet, required care; it was, he said "rich in plants of the West, of the South Pacific Ocean, and of Europe and the Indies. It is rich also in the labels of Muhlenbergh [!], and of many eminent botanists of this country and of Europe."⁷

A relatively brief treatment of the use of Eights's southern and Antarctic plants by the Hookers, father and son, follows. This is not exhaustive either historically or nomenclaturally and certain species will be further noticed in the extended species list that follows. The main purpose of this account is to show the early, relatively extensive use made of his plants.

In the early 1830s, William Jackson Hooker and G.A.W. Arnott undertook a seemingly endless series of articles on plants of South America

and the islands of the Pacific. They are not light reading, being little more than lists of scientific names of plants sent them by collectors from around the world. Many of them were supposed new species, hardly any of them well known and with established nomenclature. Hooker and Arnott were notable, if for nothing else, in that they attempted to credit collectors of plants — not just collectors of a new species but collectors of duplicate specimens of a species, new or otherwise.

The Hooker-Arnott series was already under way when Beck's offering of Eights specimens reached Glasgow. Thus, only his daisy-like composites got noticed, and even some of these appeared in sort of stop-the-press footnotes to composite species previously listed. Since Hooker and Arnott numbered their species, it is usually possible to put the parts of this long series of papers in taxonomic order. Unfortunately, the first Eights species got sandwiched in as supplements to a previous part. Fortunately, with our narrow focus, we have less interest in getting through the maze than in simply accounting for Eights's plants.⁸

The first plants collected by Eights to reach Hooker were made known by Hooker and Arnott in 1835, in volume 1 of *The Companion to the Botanical Magazine*. At this time, under their first notice of Eights (miscalled Dr. "Eight") they noted the arrival of "Some very interesting plants from the extreme southern countries of South America and parts of the Pacific, gathered by this gentleman while on a voyage of discovery in an American vessel, have been very generously communicated to us by Dr. Beck, from the Curators of the Albany Institute, New York." The species noticed are: No. 733, *Seriola Brasiliensis*, from "E. coast of Patagonia." Species No. 741, *Sonchus pectinatus*, from the "Patagonia, East coast, Dr. Eight; probably introduced." Species No. 763, *Perezia Beckii* (supposed new species proposed by Hooker and Arnott honoring L.C. Beck), "East coast of Patagonia, Dr. Eights [right, this time!]." Species No. 764, *Perezia Magellanica*, "Cape Horn, Dr. Eights" — presumably Hooker jumped to the conclusion that Staten Island was the same as Cape Horn, unless Eights collected plants at

Cape Horn on his return voyage — which is most unlikely. For no known reason, Hooker and Arnott then stumble in the next segment of their series, for four species are credited to “Dr. Beck,” all of them clearly being Eights specimens: Species No. 828, *Mutisia spinosa*, “St. Mary, South Patagonia, Dr. Beck,” presumably a double error; it was an Eights specimen and, if “St. Mary” is to be believed, it must be the so-called St. Mary Island, off the coast of Chile; since other specimens listed here are Chilean, this seems likely. Species No. 831, *Mutisia retrorsa*, is from “East Coast of South Patagonia, Dr. Beck.” Species No. 834, *Mutisia subulata*, is from “Valparaiso, Dr. Beck.” Species No. 851, *Chuquiraga hystrix*, came from “East coast of South Patagonia, Dr. Beck.”⁹

Since this is properly an account of plants of Eights’s expedition, in the broader sense, the third segment of 1835 has some interest: “Since the publication of our last Memoir...we have had the pleasure of receiving...additional collections ...; the second, a small but very interesting one, for which we are indebted to our friend B.D. Greene, Esq., consisting of specimens from the southern provinces of Chili, chiefly in Araucania, made by J.N. Reynolds, Esq., author of the ‘*Voyage of the United States’ Frigate, Potomac*;’ and from whom we further expect the account of his ‘*Travels through the Republic of Chili and the Araucanian and Indian Territories to the South*.’ The only species involved here is Species No. 940, *Eupatorium glechonophyllum*, ‘Araucania, Capt. [!] Reynolds (n. 18).’¹⁰

Hooker and Arnott used their next article to supplement previous species as well as to advance through the Compositae, having meanwhile received such prestigious collections as those of Darwin. There was also the need to include additional species of composites represented in Reynolds’s collection. This appeared in the *Companion to the Botanical Magazine* (1836). Ten specimens from Reynolds are noticed, credited to southern Chile or Araucania, mainly as supplementary to previously treated species: Species No. 751, *Picrosia longifolia*; Species No. 763, *Perezia linearis*; Species No. 769, *Leuchaeria senecionides*; Species No. 773, *Leuchaeria runcinata*; Species No. 776,

Leuchaeria volcanica (a new species from Volcano of Antuco, elevation 6,000 ft); Species No. 789, *Triptilion spinosum*; Species No. 828, *Mutisia truncata*; Species No. 833, *Mutisia subspinosa*; Species No. 834, *Mutisia subulata*; Species No. 1032, *Madia viscosa*. Eights had three specimens noticed: One was an added specimen, attributed to that strange locality called “St. Mary, S. Patagonia,” Species No. 828, *Mutisia truncata*; Species No. 1029, *Gutierrezia linearifolia*, “East Coast of Patagonia”; Species No. Species No. 1031, *Lagenophora Commersonii*, “Cape Horn.”¹¹

Hooker and Arnott next used two of Eights’s plants in a volume of the *Journal of Botany*, volume 3, dated 1834, but it seems actually to have appeared in 1841: Species No. 1046, *Baccharis eupatorioides*, “Isle la Moche, South Pacific Ocean”; and Species No. 1047, *B. ovata*, “St Mary, S. Pacific Ocean.”¹²

The next (and final) use by Hooker and Arnott of plants collected by Eights and Reynolds was in a part of volume 3 of the *Journal of Botany* intended for 1835 but actually published in 1841. Eights’s specimens are: Species No. 1191, *Leptinella* [?] *acaenoides* (query is theirs), “Cape Horn, Staten Land”; Species No. 2014, *Senecio Eightsii*, new species, from “Staten Land, Cape Horn”; Species No. 2035, *Senecio nigrescens*, “St Mary, South Pacific Ocean”; Species no. 2052, *Senecio albicaulis*, “East coast of Patagonia”; Species No. 2058, *Senecio chrysocomoides*, “East coast of Patagonia.” Three of Reynolds’s specimens are noticed: *Senecio ceratophyllum*, “S. Chili,” “Captain Reynolds”; Species No. 2035, *Senecio denticulatus*, “South Chili,” “Capt. Reynolds,” as in next; Species No. 2037, *Senecio otites*, “Araucania.”¹³

Hooker and Arnott cited a total of 18 of Eights’s specimens. Only five of these have collection numbers mentioned; these range from 39 through 81. I cannot see that any useful information on landfalls in Patagonia can be gained from the very vague localities given; those from the Chilean side will be abundantly documented in regard to Eights’s animal specimens. A total of 15 of Reynolds’s specimens is cited. A valuable commentary on Eights’s work is to be found in E.J. Godley’s “Botany of the

southern zone Exploration to 1843.”¹⁴ A couple of species of Eights’s plants will be discussed at some length separately.

It must be noted here that certain of Eights’s plant species were cited by Sir William Hooker’s son Joseph Dalton Hooker, in his classic *Flora Antarctica*. He cited Eights’s specimens, as follows: *Viola Magellanica*, “Staten Land”; *Stellaria debilis*, “Staten Land”; *Adesmia candida* (new species), “Patagonia, east coast”; *Ribes Magellanicum*, “Cape Horn”; *Myzodendron oblongifolium*, Eights’s locality not given; *Galium Antarcticum*, “Staten Land”; *Senecio Eightsii*, “Tierra del Fuego, Staten Land” — maybe Eights’s specimen is only one of these; *Clarionea Magellanica*, “Staten Land”; *Pratia repens*, “Fuegia, Staten Land”; *Aira Antarctica*, “New Shetland Islands, Dr. Eights” (see also extended commentary, below); *Usnea melaxantha*, a lichen, “New South Shetlands; Webster, Dr. Eights.” There were, thus, 11 species cited, two of which, *Clarionea Magellanica* and *Aira Antarctica*, were illustrated.¹⁵

Eights’s moss specimens have fared badly and this separate note is justified, thanks to recent detective work by Jerome Haller and Charles Cheviak at the New York State Museum. Just why the dispersal of Eights’s mosses has been so erratic is not clear. For some reason, L.C. Beck did not retain them in his main collection that ultimately came to the State Museum. As documented in Ochyra’s *Moss Flora of King George Island*, Eights not only referred (page 22) to collecting *Polytrichum alpinum* (now *Polytrichastrum alpinum*) in his account of Antarctic biology (1833), but there are actually specimens of the plant collected by him on King George Island in herbaria of the U.S. National Museum of Natural History and the New York Botanical Garden. In addition, he collected a specimen of *Sanionia nuncinata* which Ochyra illustrates (Fig. 19, page 24) that is now at the New York Botanical Garden.^{15A}

APPENDIX I: ALPHABETICAL LIST OF PLANTS

This list of plants is as complete as I can make

it. I have added specimens recently found by Jerome Haller by inserting them in alphabetical order, giving them the previous number for that section, plus an uppercase letter (thus:

Adiantum, 1-A). Two plants are specimens collected on Boavista, Cape Verde Islands, on the southward part of the journey in 1829. Furthermore, two species, *Aira* and *Frankenia*, have such a tangled history or have been so insufficiently noticed in the literature that a separate appendix for each is justified. The species are arranged alphabetically by genus, usually according to the name used in Eights’s time (except for *Lysimachia* / *Kickxia*, where I wish to draw attention to a misidentification that has recently been authoritatively cleared up). (There is an unnumbered cross-reference in this case.) For plants in the New York State Museum Herbarium, I have usually started with the identification now on the specimen; annotations may then include its history elsewhere (whether ever fully identified, etc.); those known only from published sources, of course, use whatever identification was cited there. All Eights specimens in the State Museum Herbarium are in the Lewis Caleb Beck herbarium.¹⁶

1. *Adesmia* (no further identification). “Coast of Patagonia. Collected by J. Eights.” State Museum, Beck Collection. Can this be *Adesmia candida*, n. sp., J.D. Hooker, *Flora Antarctica*, p. 257, an Eights specimen from “Staten Land”?

1-A. *Adiantum* sp. Boavista, Cape Verde. Collected by J. Eights, State Museum, Beck Collection.

2. *Aerva tomentosa*. Boavista, Cape Verde Islands. State Museum, Beck Collection. Now *A. persica*.

3. *Aira Antarctica*. No specimen, State Museum. See Appendix II.

4. *Arbutus microphylla*. “Staten Land, Cape Horn. Collected by J. Eights.” State Museum, Beck Collection. No Eights specimen was cited by J.D. Hooker.

4-A. *Arbutus mncronata*. “Staten Land, Cape Horn. Collected by J. Eights.” State Museum, Beck Collection.

4-B. *Asclepiadaceae* (genus *Vincetoxicum*?). Collected by J. Eights, State Museum, Beck

Collection. Not further identified at this time.

5. *Baccharis angustioribus*. No specimen, State Museum. New species, H & A, *Journal of Botany*, 3: 22, Species No. 1046, "Isle la Moche, South Pacific Ocean. Dr. Eights."

6. *Baccharis ovata*. No specimen, State Museum. New species, H & A, *Journal of Botany*, 1841, 3: 22, Species No. 1047, "St Mary, S. Pacific Ocean."

7. *Berberis buxifolia*. "Staten Land, Cape Horn. Collected by J. Eights." State Museum, Beck Collection.

8. *Berberis ilicifolia*. "Staten Land, Cape Horn. Collected by J. Eights." State Museum, Beck Collection.

8-A. *Boopis antheroides*. "Coast of Patagonia. Collected by J. Eights." State Museum, Beck Collection.

8-B. *Cacalia* sp. "Coast of Patagonia. Collected by J. Eights." State Museum, Beck Collection.

9. *Chenopodium* (n.f.i.). "Coast of Patagonia. Collected by J. Eights." State Museum, Beck Collection. A distinctly short-woolly species.

10. *Chenopodium* (n.f.i.). "Coast of Patagonia. Collected by J. Eights." State Museum, Beck Collection. This may be the species called *Blitum antarcticum* in *Flora Antarctica*, p. 549.

10-A. *Chilitrichum amelloides*. "Staten Land, Cape Horn. Collected by J. Eights." State Museum, Beck Collection.

11. *Chuquiraga lhystris*. Said in Albany Institute list (1836) to be from "East Coast of Patagonia." No specimen, State Museum. This is H & A, Species No. 851, called "*Chuquiraga lhystris*, Gill," but this seems a garbled citation of David Don's "Descriptive catalogue of the Compositae contained in the herbarium of Dr. Gillies," 1832. It was cited by H & A as from Beck, "East coast of South Patagonia."¹⁷

XXX. *Clarionea Magellanica*, in *Flora Antarctica*, pp. 321-322; see *Perezia magellanica*. No specimen, State Museum.

11-A. *Codonorchis lessonii*. "Staten Land, Cape Horn. Collected by J. Eights." State Museum, Beck Collection.

12. *Crassula* — *Tillaea moschata*. A strange case, for although so named on sheet, it is in a *Crassula* genus folder. "Staten Land, Cape Horn.

Collected by J. Eights." State Museum, Beck Collection. There is no mention of an Eights specimen in *Flora Antarctica*, p. 278, where this species is cited as a synonym of *Bulliarda moschata*.

12-A. *Escallonia terrata*. "Staten Land, Cape Horn. Collected by J. Eights." State Museum, Beck Collection.

13. *Frankenia*. "Coast of Patagonia. Collected by J. Eights." State Museum, Beck Collection. See Appendix III.

14. *Galium antarcticum*, *Flora Antarctica*, "Staten Land." p. 303-b (page number is duplicated). No specimen, State Museum.

15. *Gutierrezia linearifolia*. No specimen, State Museum. New species in H & A, *Companion*, 1836, p. 51, Species No. 1029, "East Coast of Patagonia, Dr. Eights."

15-A. *Hymenophyllum* sp. "Staten Land, Cape Horn. Collected by J. Eights." State Museum, Beck Collection.

16. *Kickxia brunneri*. Boavista, Cape Verde Is., originally listed in Beck Collection as "*Lysimachia*," q.v.

17. *Lagenophora Commersonii*. No specimen, State Museum. H & A, *Companion*, 1836, p. 51, Species No. 1031, "Cape Horn, Dr. Eights."

18. *Leptinella* [?] *acaenoides*. Queried H & A, *Journal*, 3, p. 326, Species No. 1191. Eights specimen from "Cape Horn, Staten Land." *Index Kewensis*, 2: 61, col. 2, = *Cotula reptans*. No specimen, State Museum under either genus.

18-A. *Lotus vix* (*sessilifolius*). Boavista, Cape Verde. Collected by J. Eights, State Museum, Beck Collection.

18-B. *Lycopodium magellanicum*. "Staten Land, Cape Horn. Collected by J. Eights." State Museum, Beck Collection.

XXX *Lysimachia*. See *Kickxia*, as now properly named. In State Museum, Beck Collection, it was originally listed as: "*Lysimachia*, apparently new resembling an *Anagallis* (Hooker). Bona Vista Cape Verde. Collected by J. Eights." A notable misidentification, since *Lysimachia* is in the Primulaceae, while *Kickxia* is in the Scrophulariaceae.

XXX *Mutisia*. There is no specimen of the genus in the State Museum; however, the Herbarium has a folder, with printed plates of

Mutisia ilicifolia, *inflexa*, *linearifolia*, *linifolia*, *run-
cinata*, and *subspinosa*, mounted as if specimens;
all from W.J. Hooker's *Botanical Miscellany*, vol.
1, plates 4, 6, 8, 9, 5, 7. (But see 19-A, below.)

19. *Mutisia retrorsa*. No specimen, State
Museum. On AI list (1836), "East Coast of
Patagonia." H & A, *Companion*, 1: 107, No. 831,
"East Coast of South Patagonia, Dr. Beck [i.e.,
Eights]."¹⁸

19-A. *Mutisia runcinata*. "Coast of Patagonia.
Collected by J. Eights." State Museum, Beck
Collection.

20. *Mutisia spinosa*. This is "*Mutisia spina*" in
the AI list (1836), where its locality is "St Mary's
South Patagonia." As *M. spinosa*, it is H & A,
Contributions, 1, p. 107, No. 828, where it is
credited to "St. Mary, South Patagonia, Dr. Beck
[i.e., Eights]." No specimen, State Museum.
Now considered equivalent to *M. ilicifolia*; but,
in their additions, H & A, *Companion*, 2: 44, No.
828, made this specimen, properly credited to
Eights, an example of *Mutisia truncata*.

21. *Mutisia subulata*. No specimen, State
Museum. On AI list (1836) given as from
Valparaíso, therefore an Eights specimen, even
though listed by H & A, *Companion*, 1: 107, No.
834, as from "Dr. Beck."

22. *Mutisia truncata*. No specimen, State
Museum. Known only from H & A, *Companion*,
1836, p. 44, No. 828, "St. Mary, S. Patagonia, Dr.
Eights."

22-A. *Myrtus nummularia* Poir. Staten Land,
Cape Horn. Collected by J. Eights, State
Museum, Beck Collection.

23. *Myzodeudron oblongifolium*. No specimen,
State Museum. *Flora Antarctica*, p. 301-b, refers
to an Eights specimen with ripe fruit; the locali-
ty is evidently "Fuegia," including Staten Land.

24. *Perezia beckii*. Something of a tangle. As
Species 763, called a new species by H & A,
Companion, 1: 34, from "East Coast of Patagonia,
Dr. Eights." It is on the AI list (1836). No speci-
men, State Museum. Under the assumption that
P. beckii is a junior synonym of *P. recurvata* of
Lessing, the State Museum lists an Eights speci-
men collected at "Staten Land, Cape Horn" as
the latter (q.v.). Merely mentioned (since
extralimital) in *Flora Antarctica*, p. 322, where it
is called a Patagonian species, to be distin-

guished, J.D. Hooker says, from *recurvata*,
which he listed under the species *Homoianthus*
echinulatus. The Patagonian specimen is not rep-
resented by a duplicate at the State Museum.

25. *Perezia magellanica*. No specimen, State
Museum; but mentioned on AI list (1836) as
from Cape Horn. H & A, *Companion*, 1, p. 34,
No. 764, give it as "Cape Horn, Dr. Eights."
Flora Antarctica, pp. 321-322, considers it under
Clarionea magellanica, where it is credited, no
doubt correctly, to Staten Land.

26. *Perezia recurvata*. State Museum, Beck
Collection, has specimen, "Staten Land, Cape
Horn. Collected by J. Eights." Evidently, not
sent to Hooker, for H & A, in additions to
Compositae, *Companion*, 2: 42, Species No. 763*,
do not cite an Eights specimen.

26-A. *Polytrichum alpinum* (now
Polytrichastrum alpinum). Collected by J. Eights,
King George Island. Specimens now in U.S.
National Museum of Natural History and the
New York Botanical Garden; see Ochyra, page
22. See also: *Sanionia uncinata*, below.

27. *Pratia repens*. No specimen, State
Museum. Known as Eights specimen only in
Flora Antarctica, p. 325, where credited to
"Fuegia, Staten Land."

27-A. *Pratia repens* Gaud. Specimen located
by J. Haller. Staten Land, Cape Horn. Collected
by J. Eights, State Museum, Beck Collection.

28. *Ribes magellanicum*. State Museum, Beck
Collection, "Staten Land, Cape Horn, collected
by J. Eights." *Flora Antarctica*, p. 279, cites an
Eights specimen from "Cape Horn."

28-A. *Sanionia uncinata*. Collected by J.
Eights, King George Island. Specimen in New
York Botanical Garden. See Ochyra, page 22
and his Fig. 19, page 24. See *Polytrichum*
alpinum, above.

29. *Senecio*, sp. indet. State Museum, Beck
Collection: "Coast of Patagonia, collected by J.
Eights." This is annotated by L.J. Uttal, 1982, as
"indet." It may be an example of another
species of the genus in the collection but needs
further study.

30. *Senecio albicaulis*. State Museum, Beck
Collection: "Coast of Patagonia, collected by J.
Eights." It is given no number, unlike a speci-
men, number 50, cited by H & A, *Journal*, 1841,

3, p. 344, their No. 2052, credited to the same locality.

31. *Senecio chrysoconoides*. State Museum, Beck Collection, an unnumbered specimen collected by Eights in Patagonia. H & A, *Journal*, 1841, 1, p. 346, No. 2058, cite Eights specimen no. 54 from "East coast of Patagonia." They refer to it as "Apparently a small and very distinct plant."

32. *Senecio Eightsii*. A State Museum, Beck Collection specimen, "Staten Land, Cape Horn, collected by J. Eights." With Eights's number of 39, it is not identified as to species. Its annotation is confusing but Hooker seems to have marked it as new. Although L.J. Uttal, 1982, was unprepared to vouch for it, it seems that a specimen with the same number was made the type of a new species, *Senecio Eightsii*, in H & A, *Journal*, 1841, 3, p. 332-333, their No. 2014, citing an Eights specimen, no. 39, from "Staten Land, Cape Horn." (If this is so, Eights numbered his specimens by collection lots, not by individual specimens.) It is, they remark, "A small, well-marked species." It would appear that the point of origin of this specimen would rule it out as being the same as my No. 29. *S. Eightsii* is listed in *Flora Antarctica*, p. 317.

33. *Senecio nigrescens*. No specimen, State Museum. Known only from Eights specimen no. 81, "St. Mary, South Pacific Ocean," cited in H & A, *Journal*, 1841, p. 339, No. 2035.

33-A. *Serapia lutea*. Locality not listed by J. Haller. Collected by J. Eights, State Museum, Beck Collection.

34. *Seriola brasiliensis*. No specimen, State Museum. AI list (1836), "East Coast of Patagonia." H & A, *Companion*, 1: 30-31, No. 733, same locality: collector was "Dr. Eights." Now a synonym of *Hypochoeris brasiliensis*.

35. *Silene*, species unknown. Specimen, State Museum, Beck Collection, "Coast of Patagonia, collected by J. Eights." Evidently a duplicate submitted to Hooker drew the response "*Silene*?" from him.

36. *Sonchus pectinatus*. No specimen, State Museum. An Eights specimen, "East Coast of Patagonia," was on AI list (1836). H & A, *Companion*, 1835, 1: 32, No. 741, credit "Dr. Eights" with a specimen from "Patagonia, East

coast," — "probably introduced." Now called *Sonchus tenerrimus*.

37. *Stellaria*, species not originally determined. Specimen in State Museum, Beck Collection, "Staten Land, Cape Horn, collected by J. Eights." It is there described as "near Arct[ic] America var. of *S. borealis*." *Flora Antarctica*, p. 250, lists an Eights specimen from "Staten Land," presumably from this collecting site, as *Stellaria debilis*. The State Museum specimen now has a new label: "*Stellaria* of North America / *Stellaria alsine* Grimm / Det.: Richard K. Rabeller, 1986 / Mich. St. U. Herb. (MSC)."

38. *Stipa humilis*. Specimen, State Museum, Beck Collection, "Coast of Patagonia, collected by J. Eights."

38-A. *Tillea moschata* ("*Tragopogon*" is pencilled on NYS sheet). Specimen No. 60, as sent to Hooker. Coast of Patagonia. Collected by J. Eights, State Museum, Beck Collection.

38-B. *Tragopogon*. See 38-A.

38-C. *Tribulus alba*. Collected by J. Eights, State Museum, Beck Collection.

38-D. *Vincetoxicum* (?). See Asclepiadaceae; identification not yet confirmed.

39. *Viola Magellanica*. Specimen, State Museum, Beck collection, "Staten Land, Cape Horn, collected by J. Eights." A "Staten Land" duplicate of this was used in *Flora Antarctica*, p. 244.

40. *Usnea melaxantha*. While not a vascular plant, it is worth noting that Eights collected a specimen of this lichen while in the South Shetlands Islands (he remarked upon its presence in the scant flora in his natural history account). The above identification of such a specimen is to be found in "*Flora Antarctica*," pp. 519-521. Since both Webster and Eights brought back specimens from that locality, it is not clear who collected Hooker's specimens.

APPENDIX II.

AIRA ANTARCTICA, A FAMOUS FIRST

The most famous of James Eights's southern and Antarctic plants was named by Sir William Jackson Hooker *Aira antarctica*. While the gener-



Figure 8.1. *Aira Antarctica* W.J. Hooker, 1837. First documented flowering plant from Antarctica, collected by James Eights. Due to an unfortunate nomenclatural tangle, now called *Deschampsia antarctica* Desvaux. (W.J. Hooker, *Icones Plantarum*, 2, Plate 150, 1837.)

ic name is no longer accepted and the specific name has been conserved in a roundabout maneuver, that unfortunate taxonomic matter will be reviewed later. For the moment, it is *Aira antarctica*, the first flowering plant to be collected in the Antarctic region.

Eights alluded in his natural history review of the South Shetlands in 1833 to “a small species of avena” that, with a lichen of the genus *Usnea* and a species of moss, formed the entire botanical catalogue of the islands.¹⁹

While Eights’s record was certainly the first to be substantiated by a specimen, others had earlier reported the existence of a grass in the

Antarctic. These were cited in my chapter on Eights in the Antarctic. I here recap the record, chiefly from an excellent review of “the earliest report of a flowering plant in the Antarctic,” by R.I. Lewis Smith. Some commentators have claimed that James Weddell, who saw grass in the South Orkney Islands and at an unspecified point in the South Shetlands in 1823, was the first to report an Antarctic flowering plant. Smith points out that the anonymous report attributed to Thomas Bone, draughtsman with Edward Bransfield in 1819–20, referred to a grass on Penguin Island, in the South Shetlands. Bone was followed by Richard Sherratt, master of the sealer *Lady Trowbridge*, which was wrecked off Cape Melville, King George Island, in the South Shetlands, Christmas Day 1820; probably early in 1821, he reported “a little grass of a small kind, and very short.”²⁰

It would be nice to think that James Eights saw the fruits of his labor recorded by Sir William Jackson Hooker in his volume of illustrations of “new or rare plants” that appeared in 1837. There, as text for Plate 150, under the introductory term “Eightsianae” (a reference to himself as collector), Eights could have read a spirited tribute, in regard to a notable new species of grass, *Aira antarctica*. The species diagnosis, in dignified botanical Latin, need not detain us. Its habitat was “New South Shetland.” Its collector: “Dr. Eights.”

Hooker then continued: “New South Shetland has been described by voyagers as a region which, though yielding a few Lichens upon the hard rocks, yet is utterly destitute of phaenogamic or flowering plants. Dr. Eights however collected in that desolate country specimens of the grass which is here figured; and probably other kinds may yet reward the researches of the Botanist who shall have the courage to visit those remote islands. *Aira antarctica* agrees in several particulars with our well-known *A. caryophyllea*; but the habit of the two is totally different no less than the colour, in ours throughout of a yellow green, particularly the paleae, not exhibiting the greyish tint and dry and scariose appearance of the former. The glumes too in our plant are much longer, (twice or thrice as long,) narrowed at the base,

and the awns are by no means so much exerted." The plate illustrates a habit sketch of the plant, together with enlarged views of a spikelet, florets removed from the paleae, stamens, pistil, and squamulae, and paleae.²¹

The younger Hooker, too, paid his respects to James Eights in *Flora Antarctica*: "The South Shetlands have been visited by an American gentleman of scientific acquirements, Dr. Eights, who detected a small species of *Grass*, the *Aira antarctica*, Hook....the most Antarctic flowering plant hitherto discovered." His account of the species is as follows: *Aira Antarctica*. "HAB. Hermite Island, Cape Horn, the Falkland Islands, and Kerguelen's Land, abundantly, J.D.H.; New South Shetlands, Dr. Eights." He goes on: "This elegant grass, appropriately named *A. Antarctica*, attains a higher southern latitude than any other flowering plant, being the only phaenogamic species that inhabits the South Shetland Islands. Kerguelen's Land in latitude 48° is its northern limit; but that Island being situated in a longitude where the rigour of the Antarctic climate extends farther north than in any other, this grass is even there more typical of the frigid zone than the latitude would indicate, and always seeks the most sheltered places. In the Falkland Islands again, the most temperate region it inhabits, it invariably avoids shelter, being found chiefly in open marshy places near the sea, fully exposed to the violence of the winds." His full-page plate, CXXXIII, delineates the species, with taxonomic details of interest.

But *Aira antarctica* was too simple and the battle of the taxonomists had yet to be fought. A part of the story was put straight by C.J.F. Skottsberg, who then obfuscated a further portion. He supposed that the elder Hooker actually knew there had been an earlier *Aira antarctica* from New Zealand, framed by Forster in 1786. But since "Forster's plant had been transferred to *Avena*...in 1817 and to *Trisetum*...in 1831 he felt at liberty [incorrectly!] to use the name *antarctica* under *Aira*." In a work on the grasses of Chile, E. Desvaux "removed it from *Aira* and placed under *Deschampsia* where it remained as *D. antarctica* (Hook.) Desv. until Parodi found that the specific epithet of Hooker was illegitimate when coined and that the first legitimate

name was *Airidium elegantulum* Steudel 1855 so the correct combination had to be *Deschampsia elegantula* (Steud.) Parodi 1949 — another well-known name of a famous species, quoted in scores of books and papers, had to disappear. However, Dr. Turrill pointed to me that Art. 81 of the International Rules comes to our rescue: if we write *D. antarctica* Desv. leaving out (Hook.) everything is in good order." Sadly, that is the way it must be.²²

Traveling under its new name *Deschampsia*, our *Aira antarctica* has been the object of recent intensive studies. S.W. Green reviewed its history and described modern experiments relative to growth and reproduction under controlled environments. Dorothy M. Greene and Anne Holtom have summarized all recent work on the species, their most recent work consider "habitats and performance in the Antarctic botanical zone."²³

APPENDIX III: THE MYSTERY OF *FRANKENIA BREVIFOLIA*

It may be that everything comes to him who waits but, among those eventuations, there are sure to be a few surprises. My colleague Sally Underwood, knowing my interest in plant specimens collected by James Eights, came to me in 1989 with a strange story. I had by then combed the exotic (colored) genus folders at the Herbarium of the Biological Survey of the New York State Museum for Eights's plant specimens. A specimen that someone marked for removal from the collection had been brought to Sally's attention.

The specimen, collected on the coast of Patagonia by James Eights, bearing the usual printed label of the L.C. Beck Collection within the Herbarium, was clearly labeled "*Frankenia brevifolia*...Hooker MSS."²⁴

A check in *Index Kewensis* failed to disclose any such name as *Frankenia brevifolia*. Furthermore, no species clearly attributed to Patagonia could be discerned in the initial two volumes. It would appear, therefore, that Hooker (Sir W.J., no doubt) had been supplied with a duplicate specimen of this plant, had

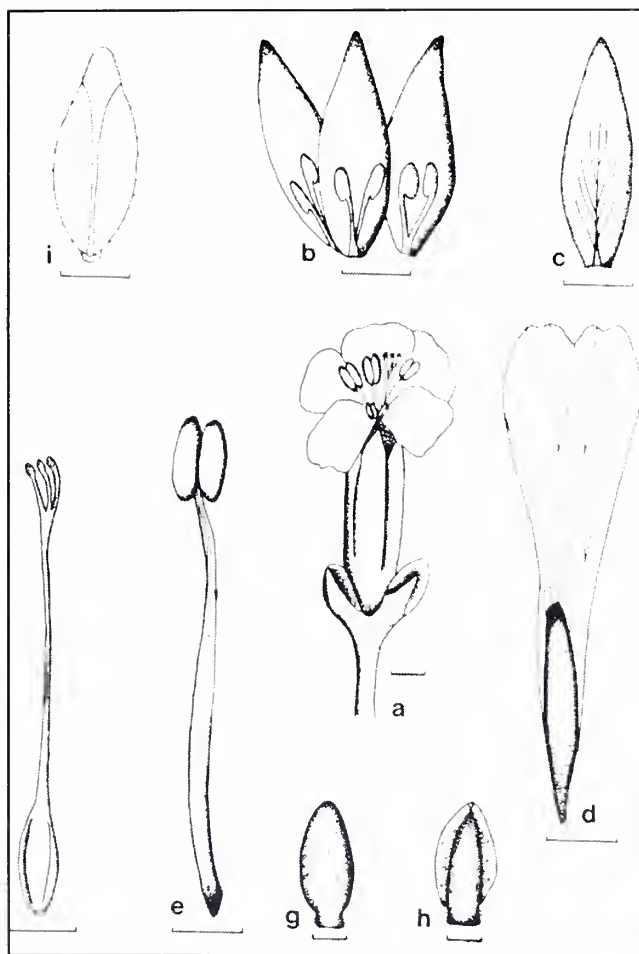


Figure 8.2. Floral details of *Frankenia patagonica* Spegazzini, 1897, a plant discovered by James Eights. W. J. Hooker gave it a name but, unaccountably, never published it. A specimen, so named, exists in the herbarium of the New York State Museum. Illustration from M.A. Whalen, "Systematics of *Frankenia*," 1987, page 54.

realized it to be new and had provided a name — then failed to publish it.

Recalling Dusén's study of plants of the Straits of Magellan and of East Patagonia, I checked and found that he listed for Puerto Madryn, on Golfo Nuevo, north of the mouth of the Río Chubut, a species of *Frankenia*, which he mysteriously provided with the specific name (to be confirmed!) of *cymbifolia* Hooker, in *Icones Plantarum*, 3: 265. Could this, I wondered, possibly be our species, which Hooker had, unaccountably, given another name?²⁵

Back to *Index Kewensis*. There I found that *Frankenia cymbifolia* was properly *Wilsonia humilis*! The nonbotanist must realize that

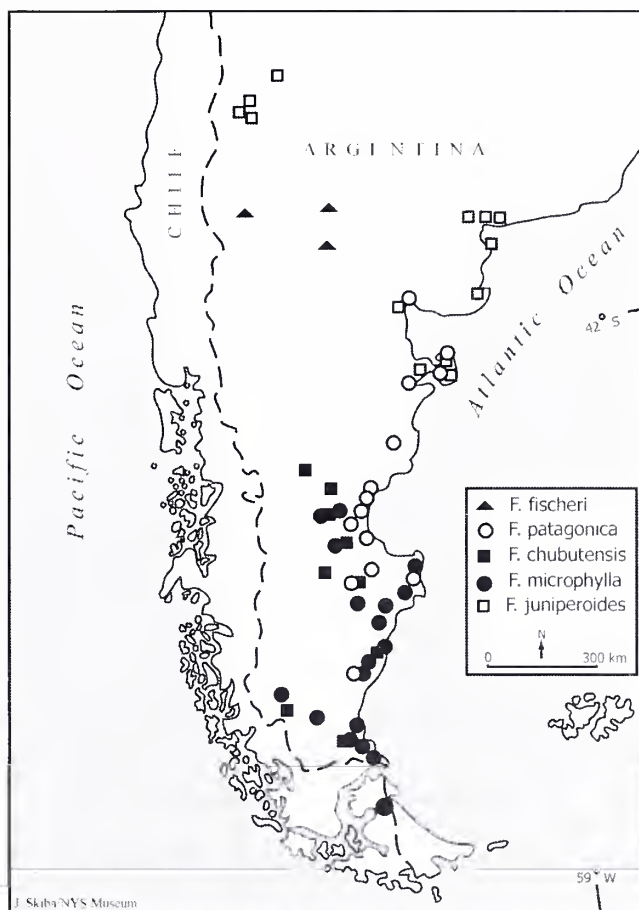


Figure 8.3. Distribution of *Frankenia patagonica* (see previous illustration). Map modified M.A. Whalen, "Systematics of *Frankenia*," 1987, page 48.

Frankenia (family Frankeniaceae) and *Wilsonia* (family Convolvulaceae) are not at all closely related. Well, even the greatest taxonomist stumbles now and then. Thus, a mystery within a mystery.

It was necessary to check the original publication of Hooker's so-called *Frankenia cymbifolia*, plate 265 in the *Icones Plantarum*. A request through interlibrary loan elicited so unusual a reply that my first reaction was that there must be more than one Plate CCLXV (265): The text of the plate was clearly entitled "Gunnianae [from the name of the purveyor of the specimen]...Convolvulaceae...Tab. CCLXV. *Wilsonia humilis*. Br.[R. Brown, describer]." No mention of *Frankenia cymbifolia*! Yet, the index for volume III, to which Plate CCLXV belonged, clearly said that that plate showed a new species,

Frankenia cymbifolia Hook., in the family Frankeniaceae. What had happened to *Frankenia* in the text?²⁶

Floundering about, hoping to find why I could not see the light, I asked Miriam T. Gross of the New York Public Library to check their copies of the *Icones Plantarum* so that I should know where to find what I assumed to be the correct Plate CCLXV in volume III, with its picture of *Frankenia cymbifolia*, Hooker, new species. No trouble, I was told, and forthwith I had in hand *exactly the same plate* — but an entirely differently labeled text page! The text began “Backhousianae [the name of the collector, James Backhouse, not the purveyor, Ronald Gunn]...Frankeniaceae. TAB. CCLXV. *Frankenia cymbifolia*.” Internally, the two texts did not differ much, except that the Cornell copy, labelled *Wilsonia*, listed R. Brown as author of the species *humilis* (in 1810) — he having had his specimens from Backhouse, by way of Gunn.

In any case, both captions, mysteries aside, agreed that the specimen (and species) came from Australia. Why had Dusén ever thought the name applied to a Patagonian species? As for the confusion on the part of Hooker, when did he discover that his original plate 265 was wrongly identified? Even though the Cornell University index for volume 3 says that plate 265 is *Frankenia*, its contained plate 265 is *Wilsonia*. Had there been public notice of a revised text for plate 265, supplied perhaps with later numbers of the *Icones*, that indicated a change of heart on the part of Hooker — to accompany his newly captioned plate?²⁷

With this information in hand, I enquired at the Royal Botanic Gardens, to see if any manuscript information was to be had in regard to the determination that *Frankenia cymbifolia* was actually *Wilsonia humilis*. Miss R.A. Davies, compiler of *Index Kewensis*, was kind enough to reply. She was entirely unaware of a replacement text, having supposed the correction to have been merely a matter of the notice supplied by Hooker in the text to plate CDX (410), *Wilsonia rotundifolia*, in the *Icones*, volume 5 (1842): “The true *Wilsonia humilis* of Mr. Brown is figured in our *Icones Plantarum* at vol. 3. tab. 265. The habit indeed of both these plants is

extremely similar to that of *Frankenia*.”²⁸

Meanwhile, this convoluted puzzle came to rest where it started: in the L.C. Beck collection of the herbarium of the New York State Museum. The unfortunate James Eights had again failed to get credit for an unnamed species that he fairly found. The specimen called *Frankenia brevifolia* by Hooker (a name unaccountably not published by him!) has now been determined by Sally Underwood and Museum Botanist R.S. Mitchell to match in all essential characters a common and widespread Argentine species, *Frankenia patagonica*, named by Carolo (Carlos) Spegazzini (1858–1926) in 1897 — nearly 70 years after Eights collected a specimen of it and attempted to bring it to the attention of botanists.²⁹

APPENDIX IV: A RUEFUL NOTE

Perhaps the title of this appendix ought to be another rueful note: one of many that can be associated with the life of James Eights. It may be unfair to build a case for the notion that American (and world) biologists early on simply agreed tacitly to ignore Eights. Yet, a poignant case of deliberate avoidance, a refusal to grant recognition where recognition might have been both just and pertinent, is to be found in Asa Gray's account of the botany of the Wilkes Exploring Expedition. My query is why in the world did Gray create a new genus of plant in honor of Jeremiah N. Reynolds but ignore Reynolds's scientifically better qualified contemporary and sometime exploring companion James Eights? That Eights did not sail with the Wilkes Expedition is beside the point: neither did Reynolds.

Asa Gray, certainly the best-known botanist America has produced, had ample opportunity for acquaintance with both Eights and Reynolds. He had been everyone's first choice to go on the exploring expedition as botanist and, early and late, took part in deciding what books were to be ordered for use on the voyage: meetings in which both Eights and Reynolds were often involved. While, as we shall see, Gray got a more secure offer and dropped out

of his own accord, Eights was dropped both because a come-lately commander considered the scientific corps too large and, to an unknown extent, because of certain alleged — and unnamed — bad habits. Reynolds, protesting loudly the while, was as unceremoniously left behind, but evidently because nobody in an official capacity at the time could stand him. He has been widely (with less than total justice) viewed as a shyster; at any rate, he was certainly not more than a tenth the scientist that Eights was.³⁰

When, as a result of various miscarriages of good intentions, Gray inherited the plant specimens collected on the exploring expedition, he saw fit to ignore Eights while honoring Reynolds by naming for him a new genus, *Reynoldsia*, a taxon of the family Araliaceae, consisting, in his work, of two new species collected in Hawaii and in one of the Samoan Islands. Not, mind you, collected by Reynolds! The plants need not detain us here. What merits attention is appended to the generic diagnosis and discussion: "I dedicate the genus to J.N. Reynolds, Esq., who merits this commemoration for the unflagging zeal with which he urged upon our Government the project of the South Sea Exploring Expedition, and also for having made, under trying circumstances, an interesting collection of dried plants in Southern Chili, many years ago."³¹

"Unflagging zeal" is almost an understatement — but can Gray have been so unmindful (or so forgetful?) of injured egos among even some friends of the expedition, publicly denigrated as they were by Reynolds, that he put it in such innocent-sounding words? Can Gray, somehow, even have approved of Reynolds's roughshod dealings with the combination of navy brass and civil bureaucrats, so deviously set on denying Reynolds a berth on the expedition that would, surely, have been largely non-functional and honorary? And can Gray have been ignorant of Eights's plants? We do not know the full story of either man's collection, so it is bootless to compare numbers of plants. It does appear that more of Eights's plants were cited, as by Hooker and Arnott, than Reynolds's. And, perhaps most of all, one is jus-

tified in protesting that Reynolds can hardly have collected his plants under more "trying circumstances" than did Eights! Furthermore, Eights gets no attention from Gray even in regard to the more southern and Antarctic species that surely ought to have been pertinently cited in regard to the botany of the exploring expedition for which Gray was accounting.

NOTES

1. Sir William Jackson Hooker (1785-1865) was the magician who made the Kew Gardens into the delight and storehouse they are today; see Mea Allan, *The Hookers of Kew*. Joseph Dalton Hooker (1817-1911) shared Eights's plants in his great *Flora Antarctica*. Had Antarctic botany continued to be championed by such minds, perhaps Eights would have long since had his share of attention. Typically, students of Antarctic botany either ignore collectors (as in the otherwise admirable accounts by Per Dusén, "Die Gefässpflanzen der Magellansländer" and "Die Pflanzenvereine der Magellansländer" (1900), or Eights simply falls through the holes, as with W.B. Turill's account of botanical collectors in "Botanical exploration in Chile and Argentina" (1920). It is probably understandable that Eights did not qualify for mention in Alan A. Beetle's capable review of literature on "Phytogeography of Patagonia" (1943). Thanks to the fact that modern Antarctic scientists have been sensitized to Eights's existence, S.W. Green's "Plants of the land" (1964), George A. Llano's "The flora of Antarctica" (1965) and D.C. Lindsay's "Vegetation of the South Shetland Islands" (1971) all include his notably early report of a species of grass from King George Island. The only botanist to give a thorough history of Eights's southern and Antarctic plants is E.J. Godley, in "Botany of the Southern Zone / Exploration to 1843," pp. 158-160, 1965.

2. *AI Minutes*. W.J. Hooker was soon to be at Kew. It is of interest that the Becks report sending a complete set of plant specimens to Hooker, not just duplicates, as appears to have happened with mollusks sent to Hugh Cuming. Hooker was a recognized authority, of course, and L.C. Beck had long been a correspondent of his, although none of the correspondence I have seen, courtesy of Kew archivists, concerns the Eights specimens. As will be evident in a close study of Eights's plant specimens, Hooker was sent more plants than he actually used; therefore, perhaps he really did name some without retaining them for his own use; maybe, of course, he was given duplicates in return for his services. L.C. Beck's relationship to Eights's plant specimens is somewhat uncertain, too, but he ended, evidently by exchange for duplicates in the AI cabinet, with what was certainly the only substantial collection of Eights's plants in America in private hands.

3. I thank Susan Safford, McKinney Library, Albany Institute, for bringing this previously uncatalogued letter to my attention. Since xerocopying of this fragile item

seemed both dangerous and likely to prove useless, I transcribed it by hand; perhaps study of a photographically enlarged copy would elucidate a few of the questioned words. "Mr McNab" was no doubt James McNab (1810-1878), author of "Account of the rarer plants observed during an excursion in the United States and the Canadas in 1834"; but this report contains no hint of any dealings with botanists in Albany. See also E. Charles Nelson and W.G. Dore, "James McNab's collections from eastern North America, 1834."

4. McKinney Library, Al; reference is to W.J. Hooker and George Arnott Walker Arnott (1799-1868), "Contributions towards a flora of South America and the islands of the Pacific. I. Extra-tropical South America," in the *Companion to the Botanical Magazine*, vol. 1; details of the tangled use of Eights (and Reynolds) specimens will follow.

5. Al Minutes. It is evident that Hooker had returned to Beck a list of plant numbers and names (not specimens), the latter of which Beck then applied to similarly numbered specimens in the Institute herbarium.

6. Anon., 1876, "Libraries and herbaria. II. (The New York State Herbarium)."

7. 11th Ann. Rept., Cabinet of Natural History, Assembly, No. 163, p. 10, 1858; Board of Regents, State University of the State of New York, 18: 6-7. For Lewis Caleb Beck (1798-1853), noted naturalist, physician and author, see F.A. Stafleu and R.S. Cowan, "Taxonomic Literature," 94: 160; L.B. Sebring and L.B. Sebring, Jr., *Life of Lewis C. Beck, M.D.*; W.H. Cole, "That amazing man Beck." It is annoying that no catalogue of the Beck herbarium has been retained by the Albany Institute, the State Museum or administrators of the old State Cabinet, for it is inconceivable that Beck did not have such a list of his herbarium's holdings.

8. Hooker and Arnott began their series modestly enough with "Contributions towards a flora of South America and the islands of the Pacific," in *The Botanical Miscellany*, 3: 129-212, 1833, covering species 1-384. They initially planned the work to describe a collection of plants of nontropical South America, mostly from west of the Andes, made by Hugh Cuming, whom we shall meet again when Eights's mollusk specimens are described. Meanwhile, they had accumulated a substantial amount of material from other collectors, a few of whom collected in Argentina, and they gradually enlarged the scope. The second article occupied pp. 302-367 of the same volume and covered species 385-653. The next article in the series came out in a journal given a new name, *The Journal of Botany* (often referred to as "Hooker's Journal of Botany" or "Journal of Botany [London, ed. by Hooker]"), 1: 276-296. The third article covered species 654-729. Through the end of this segment, no plants collected Eights had yet come into Hooker's hands.

9. Hooker and Arnott, "Contributions," *The Companion to the Botanical Magazine*, 1: 29-38, 102-111, 1835. Eights (and Beck) items are noticed pp. 30-31, 31 note 1, 32, 34 (2), 107 (3), 109. I can find nowhere any reference to a "St. Mary" in Patagonia.

10. Hooker and Arnott, "Contributions," *Companion*, 1: 234-244, 1835; see pp. 234-235, 243. Reynolds must have been pleased at the advance in rank! — the world still awaits the publication of his promised *Travels*. Hooker's friend Greene was Benjamin Daniel Greene (1793-1862),

first president of the Boston Society of Natural History (1830-1837) (Meisel, *Bibliography*, 2: 462).

11. Hooker and Arnott, "Contributions," *Companion*, 2: 41-52, 250-254, 1836; Reynolds, pp. 42(4), 43(2), 44(3), 51; Eights, pp. 44, 52(2). Bear in mind that what is today's southern portion of Chile was then the independent native nation of Araucania.

12. Hooker and Arnott, "Contributions," *Journal of Botany*, 3: 19-47, "1834." The Eights specimens are cited on p. 22.

13. Hooker and Arnott, "Contributions," *Journal of Botany*, 3: 310-348, published April 1841; Eights, pp. 326, 332-333 (*Senecio Eightsii*), 339, 344, 346; Reynolds, pp. 332, 339(2). While indicated on p. 348, "To be continued," I have not found that it was.

14. E.J. Godley, "Botany of the southern zone / Exploration to 1843," *Tuatara*, 13(3): 158-160; the year "1829" is too restrictive; J.W.[.] Reynolds and J.R.[.] Watson did not sail on Capt. Pendleton's *Seraph* — Reynolds certainly was on the *Annawan* with Eights and I know of nothing to the contrary on Watson.

15. Joseph Dalton Hooker, *The Botany of the Antarctic Voyage of H.M. Discovery Ships Erebus and Terror, in the Years 1839-1843. Under the Command of Captain Sir James Clark Ross*, vol. I, *Flora Antarctica*. See pp. 244, 250, 257, 278-279, 301, 303, 317, 321-322, 325, 377, 519-520; Pl. CXI (*Clarionea*, left figure), CXXXIII, *Aira*.

15-A. I thank Jerome Haller and Charles Sheviak, who have been engaged in identifying Eights plant specimens and arranging them into a permanent Eights subcollection (2001), for making additional information available to me. Charles Boewe obligingly tracked down the complete reference to Ochrya's book, which was unavailable to me.

16. I am indebted to many people for making this list as complete as it is. Certain persons will be cited in regard to individual species/specimens and their names may not appear here. In Albany, Charles Sheviak, Richard Mitchell, and Kenneth Dean made the search in the herbarium of the New York Biological Survey both possible and fruitful. Dr. G. Ll. Lucas was kind enough to check several specimens in the Herbarium of the Royal Botanic Gardens, Kew. A few notes of interest turned up in archives of Albany Institute of History and Art. Two species of Cape Verde plants are mentioned in my account of Eights's southward journey in 1829; both are listed here. I checked for Cape Verde plants in the State Herbarium, using "Flora of Macaronesia, checklist of vascular plants" (3d ed., rev.), by A. Hansen and P. Sunding, kindly supplied by Per Sunding, who also thoughtfully provided a list of likely genera to search for. (Providentially, exotic species are easy to search for in the State Herbarium, because they are stored in colored folders.) While not ideal, I used genera cited by J.D. Hooker's *Flora Antarctica* in searching for Antarctic plants. All original genera/species have been checked in *Index Kewensis*, although not through all its Supplements, so this by no means qualifies as a laundered and up-to-date list of names. With them, however, you can get a start!

17. This is proof that Hooker and Arnott's "Dr. Beck" specimens were collected by Eights. Along with other hints, it makes it clear that L.C. Beck's herbarium and that of Albany Institute were always separate. It also indicates, sadly, that the original Institute herbarium has entirely disappeared.

18. The listing of this species on the Institute list of 1836, where the plants are clearly identified as Eights's, is further proof that Hooker's attribution of specimens to Beck as collector was incorrect.

19. Eights, "Description of a new crustaceous animal," p. 65; Eights somehow missed the only other flowering plant yet discovered in the South Shetlands, the pearlwort (pink family) *Colobanthus quitensis* (or *C. crassifolius*); it was not discovered until Feb 1905. For a comprehensive general account of Antarctic plants, see: S.W. Greene, "Plants of the land," 1964; his text reference to Eights's collection of *Aira*, p. 247 (in "the 1820s") is not further documented. See also: George A. Llano, "The flora of Antarctica," in Trevor Hatherton, ed., *Antarctica*, p. 335; D.C. Lindsay, "Vegetation of the South Shetland Islands," 1971, pp. 63, 65, 74; George E. Watson, *Birds of the Antarctic*, p. 270 (he is in error to make Eights "the first scientist to visit anywhere in the Antarctic").

20. R.I. Lewis Smith, "The earliest report of a flowering plant in the Antarctic?"

21. Sir William Jackson Hooker, *Icones Plantarum; or Figures...of New or Rare Plants*, vol. 2, text and plate CL (150). Sir William obviously painted with a broad brush in regard to descriptions of previous voyagers, even as he held out unrealistic hopes that more discoveries awaited the daring collector.

22. C. Skottsberg, "Antarctic flowering plants," pp. 330-331; see also pp. 331-334. Skottsberg had been unable to trace Eights's plants, for reasons not clear; he was, in addition, badly misled by Dr. W.B. Turrill of Kew, who provided Hooker's type specimen, but also told him that a cryptic annotation read "D. Berk," which Turrill interpreted to mean "Debit Berkeley" — thus that "the specimen was given to Hooker by the Rev. Berkeley who had correspondents in America"! As E.J. Godley, "Botany of the southern zone," p. 159, has pointed out, the annotation is properly read as "Dr. Beck" who, of course, had transmitted Eights's specimens to Hooker. Lorenzo R. Parodi, "Las gramíneas sudamericanas del género *Deschampsia*," described the new combination *Deschampsia elegantula* (Steud.), pp. 452-454. The affair of *Aira antarctica* has also been summarized by G.A. Llano, "The flora of the Antarctic," p. 335. And a footnote to a footnote: in 1953, Skottsberg, p. 337, recorded a single specimen seen (and collected) of *Poa annua* at Whalers' Bay, Deception Island: "In flower. — As far as I know this is the first record for a weed in the Antarctic." Considering the considerable success of some man-dispersed plants in the Antarctic, R.I. Lewis Smith ("Introduced plants in Antarctica: potential impacts and conservation issues") warns against the laxity of past and current practices — lest the list of plant species in the Antarctic be artificially lengthened, to our hurt.

23. S.W. Greene, "Studies in *Colobanthus quitensis* (Kunth) Bartl. and *Deschampsia antarctica* Desv.," D.M. Greene and A. Holtom, "Studies in *Colobanthus quitensis*...and *Deschampsia antarctica* Desv.: III. Distribution, habitats and performance in the Antarctic botanical zone."

24. I am most indebted to Sally Underwood for thinking of me and to Dr. Charles Sheviak of the Biological Survey Herbarium for his splendid cooperation.

25. Per Dusén, "Die Gefäßpflanzen der Magellansländer nebst einem Beitrag zur Flora der Ostküste von Patagonien," p. 255. Dusén annotated his citation of the Hooker name with the abbreviation "cfr."

which I take to mean "awaiting confirmation."

26. Sir W.J. Hooker, *Icones Plantarum*, 3, pl. 265, with text; note, however, variant texts described herein! This copy of the *Icones* is in the Cornell University Albert R. Mann Library, from which I have kindly been supplied xerocopies of plate, text, title page, and index.

27. Ed Spragg, Reference Librarian, Cornell, checked two copies of volume 3 and found no binders' instructions in regard to such a matter.

28. I am most grateful to Miss Davies for her help; she supplied a copy of plate 265 from the only copy of vol. 3 at Kew: its caption to plate 265, claiming to show *Frankenia*, has added in pencil, "*Wilsonia humilis*." She likewise copied plate 410 and pages of relevant later floras citing the information she shared. At that time, her feeling was: "I do not think this is a case of text being replaced." She could only suppose that Dusén "thought he had the same plant as Hooker but his was a *Frankenia*. According to Sue Zmarty who curates Frankeniaceae at Kew herbarium, there is a superficial similarity in appearance, if there are no flowers or if the flowers are over" (letter, 19 Feb 1992). When I supplied a photocopy of what clearly is a revised text for vol. 3, plate 265, Miss Davies replied (20 Mar 1992) that there was nothing at Kew concerning this and that the matter would be checked with other libraries; since I have heard nothing further, I assume nothing was learned.

29. My thanks to friends Sally Underwood, Richard Mitchell, and Charles Sheviak for help with the State Museum specimen. There are splendid illustrations, maps and keys in Dr. Maevia N. Correa's "Las Frankeniaceae argentinas," 1966, see especially pp. 80-82, Fig. 4. Spegazzini named his new species, *Frankenia patagonica* in "Plantae patagoniae australis," p. 497. For further information on the Frankeniaceae, see: William L. Bray, "The geographical distribution of the Frankeniaceae considered in connection with their systematic relationships"; F. Niedenzu, "Frankeniaceae," in Adolf Engler, *Die Natürlichen Pflanzenfamilien*, 21: 276-281; M.N. Correa, "Las Frankeniaceae argentinas"; Molly Ann Whalen, "Systematics of Frankenia (Frankeniaceae) in North and South America" — see especially Fig. 4, p. 8, excellent maps, pp. 16, 48, and account of *F. patagonica*, pp. 52-55. A possible clue to Hooker's ignorance of Brown's work with Australian plants, may lie in Brown's reluctance to share that information with Hooker. This is hinted at in Brian J. Ford's account of Brown's notably astute early observations on the physical phenomenon known as Brownian Movement. Robert Brown (1773-1858) left a record of solid work on Australian plants. See B.J. Ford, "Brownian movement in *Clarkia* pollen: a reprise of the first observation" (*The Microscopist*, 40: 235-242).

30. As an example of Gray's work in preparation for the departure of the Exploring Expedition, see a list of about 11 Nov 1836, in Gray's handwriting, of "List of botany books," National Archives Microfilm 75, 1:0516-ff. This era of Eights's life will be treated in a later chapter.

31. Asa Gray, *United States Exploring Expedition...Botany. Phanerogamia*, vol. 1, pp. 723-724, 724, 725. The new species were illustrated on plates 92, 93, in the folio atlas. Surely, Gray would have read Edmund Fanning's peroration denouncing popular feelings that all credit for advancing the national exploring expedition should be given Reynolds (*Voyages to the South Seas*, 1838, pp. 168-172).

SOUTHERN AND ANTARCTIC BIOLOGY: MOLLUSKS

Throughout his life, shells held an interest for James Eights. The total bulk of his shell collection in southern waters must have been large, both relative to other forms of life collected and absolutely as to total numbers. No doubt his own predilections contributed to the result; but one must also realize the convenience of collecting shells and the enormous popularity of shells, among both scientists and amateurs. No preservative was needed, since no emphasis was given to retaining soft parts. A wooden chest and minimal packing insured safe carriage. As to popularity, the craze for shells knew no bounds.¹

The uncertainty as to where Eights's specimens went is already known. The first public notice of the specimens was simply that shells were among natural history objects bought by the Albany Institute. In 1834 the public learned more: On 10 June, the *Argus* carried a long account of donations to the Institute since the first of January. Two parts of the account are pertinent. "A duplicate set of the shells collected by Mr. James Eights (on the coast of South America, the Gallipagos, &c. and which, with the remainder of his collection, were purchased by several of the citizens of Albany, for the Institute) was some months since sent to London. They have been examined by skilful conchologists there, and more than half are pronounced new and undescribed. Such as have been previously known, are named from the writings of Sowerby, King, Broderip and others. The Institute have duplicates of several, and are

willing to exchange them for shells not in the collection." The second item of interest concerned donations: "A collection of rare and valuable shells...[not copied here] amounting to 62 [!] specimens, each of different species — from H. Cumming [!], of London, through O. Rich."²

There is nothing in Institute Minutes to clarify matters but the "Catalogue of Properties" is more explicit, listing both specimens sent by Cumming and Cumming's names, so far as known to him, of the original lot of duplicates sent from the Eights collection. Both lists are merely summarized here, since they refer to collections that have most unfortunately been, when not totally homogenized into other collections, dispersed and lost.³

Readers will find even summaries of the Cumming and Eights lists hopelessly tangled. Notes expand a little on the mess but I refrain from an annotated, faithful copy. The list, "A Collection of Shells in exchange for Duplicates of Mr Jas Eights' Collection from Mr H Cumming / London / through O. Rich Esq.," consists of 82 [!] specimens, provided in most cases with both generic and specific names, together with, for those already known, some indication of "where described & by whom." Many of the scientific names have, understandably, been changed since Cumming's day (putting aside possible incorrect names, which in the absence of specimens cannot be investigated). His place names are both out of date and often hopelessly inexact (e.g., "Panama," "Central America,"

"Gallipagos Isle" — not to mention his Lord Hood's Isle or Island, a name he applied to at least three places). The same, of course, applies to his shorthand list of authorities and works by whom and where names were published. For the most part, of course, patient digging has unearthed pay-dirt. Some ambiguities remain: Three specimens of *Helix* have no specific name (secretarial lapse?); unnamed new species of *Cardita* and *Chama* are included.⁴

Tinkered with as it is (I assume that the specimens sent originally to Cuming were numbered and that, in return, he made out a list of names to go with those numbers, which curators at the Institute then assigned to their specimens and entered in the "Catalogue"), the list of Eights's shells deserves more detailed attention than has been given to the Cuming list. There is a total of 84 [!] specimens.

The list of shells of Eights's alleged collection (he may have swapped with other collectors along the way) offers some difficulties in analysis, partly because nine were thought by Cuming to be duplicates (that is, perhaps, color or size variants). Thirty-six were given full binomials; 26 were listed by genus only (thus, are considered new species). One new form, the name perhaps undecipherable by the recorder, was listed as "T" only; one was the operculum of one of the species; another specimen was the spine of a sea urchin. Ten specimens are listed without either part of the binomen; oddly, not all of these are asterisked as "new species." Thirty-three specimens were labeled as new (that is, unknown to Cuming). Even if half these were truly new species, James Eights ought to be given credit for a good season's work. These specimens were just those deemed the duplicates of Eights's collection. Nor does it take into account possible additional specimens in the collection of the Lyceum of Natural History of New York (nil?) or in Eights's own keeping. Some analysis is pertinent, in an effort to wring as much information as possible from a project that has gone bad.

Some specimens were entered with two localities, one assigned to "E" (Eights) and one to "C" (Cuming) or another collector (that is, Cuming had specimens from both localities).

Some were assigned locations based upon published names (usually with authority and publication — thus, we have the locality of the named type specimen, not Eights's specimen). I try to treat here only those that have clear connections with Eights's collection points and those with only one location (which ought to be, but probably are not in all cases, Eights localities). It will become clear that a reliable itinerary for Eights cannot be constructed from these collection data.

In geographic order, north to south and southwest, along Eights's trail, the specimens are: a species each of *Planaxis* and *Fusus* from the Cape Verde Islands (both accounted new); African coast, where Eights did not collect, two genera (*Purpura* and *Siphonaria*), both, oddly, accounted new; Río de la Plata, where Eights did not collect, *Anodonta crassus* Swainson, accounted a new species; and a new species of *Pecten* from "Newpoint, Patagonia," a valuable locality, if it can be sustained, since so little is known of Eights's places of landfall there. There are six species from Staten Island, five of them new; three are listed as from Cape Horn, one new, even though to my knowledge Eights did not collect there, while Cuming did — I see no reason for the Cape to be confused with Staten Island. There is, notably, a new species of *Patella* from "Potter's Cove, New South Shetland" (but note the absence of *Nucula*, to be treated later!). Six species were credited to the coast of Chile (hardly a pinpoint locale!). There seems no reason to doubt 16 species from "Island St. Mary's," two species from "La Mocha," and 17 species from Valparaíso; nor are three species from the "Island of Huaffo" (Guafo) and one from the "Island of Chiloe" unbelievable, even though we know little about Eights's activities there. There is some reason to doubt that Eights collected the 10 species from the "coast of Peru" credited to him. I have no reason at all to think he collected four species (two somewhat ambiguously marked) at Juan Fernández or the six species said to have come from the "Gallipagos Islands." I suspect in all cases Eights's locality has been suppressed because Cuming had similar or identical material from those islands (at both of which he had collect-

ed). (Bear in mind that “species” here is used because it is less ambiguous than “specimens,” even though there is minor duplication of specimens.)⁵

Before going on to James Eights’s by now famous specimen of Antarctic mollusk given, in a rather roundabout manner, the name of *Nucula eightsii*, I propose to finish off the sad story of the Eights mollusk collection at the Albany Institute. Facing the loss of its rooms at the Albany Academy (with storage and work space long since reduced to the vanishing point), around 1890 members of the Institute set about salvaging what they could by transferring the scientific collections to what they hoped would be a safe haven offered by the New York State Museum. Collections were already in disarray. The move further contributed to loss of specimens, loss of identifying information on specimens, and loss of significant specimens deemed unworthy of salvage when not pristine in some way. The ultimate step was, with good luck, homogenization within State Museum collections, but often without evidence of the transfer. It may thus be difficult or impossible to trace them. The history of this mass changing of the guard is briefly summarized with emphasis upon the fate of Eights’s southern and Antarctic mollusks.

Initially, we hear from the State Museum in 1891: “The Albany Institute has donated to the State Museum its extensive collection of minerals, fossils, shells and alcoholic specimens. During the next year this material, most of which is now stored in boxes, will be unpacked and catalogued so far as possible.”⁶

What appears to be the entire residual Institute zoological collection, as retained and presumably catalogued by the State Museum, was listed in the State Museum Report for the year 1892. This includes specimens of some 121 species of mollusks. A substantial number of these are obviously a part of the Eights southern and Antarctic collection, although his name was not mentioned. This is particularly to be regretted in the case of Panamanian specimens, where knowledge that he was a collector would do something to document his otherwise mysterious travels in that area. There are 11 species

from Valparaíso (up to 24 specimens of each); 13 species from Isla de Santa María (up to 30 specimens of each); two species from Isla de Guafo. There are also four species from Cape Horn, perhaps a pooling of specimens from Staten Island (not listed). Peru, Chile, Juan Fernández, Río de la Plata, Galápagos are also listed — clearly, no one had ever attempted to clean up localities. Notably, Eights’s new species of river mussels (*Unio*) were not represented, nor were any of his Antarctic species of Crustacea or Pycnogonida.⁷

Nucula eightsii

The case of *Nucula eightsii* comes next. However strange its history, there is no lack of information about the species.

Richard I. Johnson, in his bibliography of new species of Joseph Pitty Couthouy (with biographical notes), rigidly denied Couthouy credit for describing the species *eightsii*, because, although “the description was read by Couthouy before the Lyceum of Natural History, New York,” it was not published until used in the third edition of Dr. John C. Jay’s shell catalogue in 1839. It is, however, perfectly correct to refer to it as “*Nucula eightsi* [the spelling now preferred] Couthouy, in Jay, 1839,” as R.K. Dell has done.⁸

The start was hesitant, the history convoluted. Dr. John Clarkson Jay’s first (1835) and second (1836) editions of his *Catalogue* did not include the species. In 1839, Jay’s species No. 914d was “*Nucula Eightsii*, Couth., Sandwich

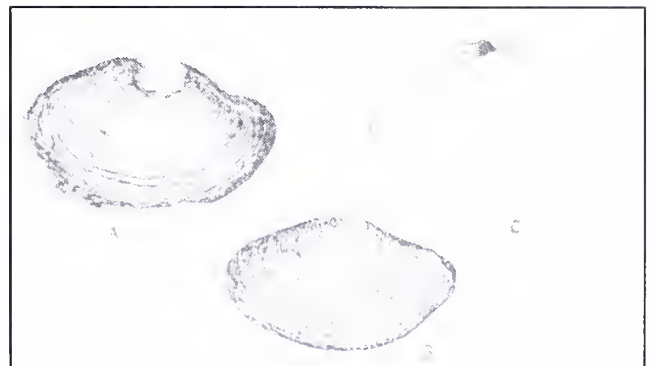


Figure 9.1. *Nucula eightsi* Couthouy, in Jay, 1839. It is now known as *Yoldia* (*Aequiyoldia*) *eightsi*. From R.K. Dell, “The identity of *Yoldia* (*Aequiyoldia*) *eightsi*,” *Proceedings of the Malacological Society of London*, 35, page 248, 1963.

Islands [!],” with a reference to a plate. In the extended caption of Plate 1, he wrote: “Figure 12, 13. *Nucula Eightsii*, Couthouy. / Annals Lyceum Natural History. / Habitat, New South Shetland [thus getting the locality correct]. / *Remarks*. A description of this new species of *Nucula* was read before the Lyceum during the last year, by Joseph P. Couthouy, Corresponding Member. Mr. C. presumes this to be a new species, from its remote locality, and the fact that it is neither alluded to by M. Des Hayes in his new edition of Lamarck, nor figured by Sowerby in his ‘Illustrations of the Genus *Nucula*,’ which embody all the new ones carried to England by Mr. Cumings [!], from the South Atlantic and Pacific Oceans. A few specimens only of this shell were picked up on the shores of New South Shetland, by Dr. James G.[!] Eights, of Albany, N.Y.” Figures 12 and 13 show external and internal views of a valve. How Couthouy, who was very active in naming new mollusk species, came to have the specimen is not clear. Possibly it was given to him for description by the Lyceum, supposing that Eights had deposited a specimen there. More likely, Eights himself gave it to Couthouy to describe, since the two of them were for a while associated in preparations for the great Wilkes Exploring Expedition (and by the time Jay’s work appeared, Couthouy was at sea with the expedition). It is still a mystery why Couthouy’s paper was not published by the Lyceum.⁹

In 1846, Sylvanus Charles Thorp Hanley published *An Illustrated and Descriptive Catalogue of Recent Bivalve Shells*, where we have *Yoldia eightsii*, although the figure shows a different specimen from that figured by Jay. In 1860, Hanley described *Yoldia woodwardi*, a widely distributed Antarctic form, supposing it to be different from *Yoldia* (or *Laeda*, as he called it) *eightsii*. In the following decades, the names were used together or alone and it was not until R.K. Dell’s thorough review of the matter that the dust was settled.¹⁰

After coming to a conclusion, based upon Couthouy’s figure (in Jay, 1839), that the illustration either showed an individual variant or was an artist’s error, Dell assigned Couthouy’s

name to the sometime specimens of *Yoldia woodwardi* in his comprehensive list of Antarctic and Subantarctic bivalves (1963). After a firsthand study of Couthouy’s type specimen (now in the type collection of the American Museum of Natural History: type No. 56119), Dell established his case (1964). “Examination of this specimen showed immediately the source of all subsequent uncertainty. Jay’s figure gives a good representation of the type but the specimen is deformed, the whole posterior portion of the shell having been twisted rather violently during growth in a clockwise direction. The dorsal margin and the posterior hinge line are both very considerably displaced. Jay gave no description so that the concept of the species has rested upon these rather inadequate figures of a distorted specimen.”¹¹

This Antarctic discovery of James Eights has recently been thoroughly investigated, both taxonomically and, to some extent, even biologically. The genus *Yoldia* has been revised by Ian W. Rabarts and Solene Whybrow and growth in the species has recently been studied by Conor P. Nolan and Andrew Clarke. The latter have found a slow growth rate, maximum shell height of 22.3 mm (shell length of 35.6 mm) being reached at the age of more than 60 years.¹²

NOTES

1. Early in the nineteenth century, a biobibliography of writings on shells already came to a substantial monograph: see W.G. Maton and T. Rackett, “An historical account of testaceological writers,” 1804.

2. Albany *Argus*, Anon., 10 Jun 1834. Thus did Obadiah Rich, “12 Red Lion Square, London,” show his usefulness; he thoughtfully provided the Library with a book, *A General Catalogue of Old and New Books, in the English, Spanish, Italian, French and Other Languages* that were available from his shop. What is not said is that the named specimens from Hugh Cuming were sent in exchange for Eights’s unnamed specimens.

3. I record here my best thanks to Richard E. Petit, who patiently answered questions that must have seemed both endless and ill-informed. In the process, I learned a good deal more molluscan nomenclature than I needed to know. I also studied the travels of naturalists and works of conchologists of the era and tracked down place names that turned out to have much to do with Cuming but nothing with Eights. Nor did I need to have bothered

about "Sowerby, King, Broderip and others," for that was name-dropping: a reference to previous describers of species, not those of James Eights's specimens.

4. Hugh Cuming was the shell collector of shell collectors of his day. He has his followers as well as his detractors. For the former, see especially "Hugh Cuming (1791-1865) prince of collectors," by S. Peter Dance and Dance's long chapter on "The Cumington era," in his *A History of Shell Collecting*, pp. 110-131. Among detractors, see W.J. Clench, "Some notes on the life and explorations of Hugh Cuming" (1945), where you hear that he depended "upon his memory for the name of locality of his specimens"; that he may, in fact, have destroyed habitat data that came with specimens; that names were often not permanently attached to specimens; that he cared little for unnamed specimens ("names were needed for his wares"); that he dealt with "weaker men" (not the leading conchologists of his generation) when soliciting names for new species (and perhaps even paid for that service); that even type specimens might be discarded from his collection when a handsomer example came along. Some of which may be unfair, as Dance says. Cuming, at any rate, was a creature of his own time — but of gigantic dimensions in all ways! Many a collector of that day preserved little in the way of habitat or even precise locality data with a specimen. It was a day when taxonomists neglected collector's names and museum curators cared even less. It was also a time when few taxonomists (or would-be taxonomists) had access to adequate literature and confused and unnecessary duplication of names was certain to occur. Cuming, in any event, was everybody's dream of a collector. He was so successful in his Chilean-based sail-making business that he retired after seven years, built an impressive boat, the *Discoverer*, designed especially for his collecting, in which he sailed throughout much of the southern Pacific. He had returned to London only in 1831 from one such major exploration. One wonders, in fact, if James Eights had not met him in Chile, where Cuming was treated with favoritism by the government and where he had collected widely. Additional publications on Cuming are: (1) E.D. Merrill, "Hugh Cuming's letters to Sir William J. Hooker"; (2) Harold St. John, "Itinerary of Hugh Cuming in Polynesia"; and (3) J.T. Howell, "Hugh Cuming's visit to the Galapagos Islands." The last needs to be consulted in regard to various Galapagos specimens that are cited in the Cuming donations to Albany Institute. The presence of three "Lord Hood Isles" among Cuming's localities is noticed by W.H. Pease, "Descriptions of new species of marine gasteropoda inhabiting Polynesia" pp. 82-83.

5. It must be realized that Cuming in this entire era was most actively accumulating specimens from all parts of the world. Notable for our records is a new species, *Anatina prismatica*, from "New South Shetland," that had been "Driven on shore after a gale" (G.B. Sowerby, in an untitled account of Cuming's new species, *Proceedings of the Zoological Society of London*, 2: 87); this is not, as might be thought at first blush, to be credited to Eights but rather to Lieutenant Kendall, of the sloop *Chanticleer*, as is another species, *Anatina elliptica* (Philip Parker King, "Description of the Cirrhipeda, Conchifera, and Mollusca...southern coasts of South America," 3: 335 — both collected a year before Eights was in the South

Shetlands. Modern maps do not show a "Newpoint" in Patagonia; but I am indebted to Brian D. Thynne, Hydrography Section of the National Maritime Museum, Greenwich (29 Jun 1992), for pointing out that this was probably even then usually known by the name of "Nuevo Head," now "Morro Nuevo" ("Morro" being the Spanish word for headland or bluff); this is at the entrance to Golfo Nuevo, at 42°52' S. 64°09'W. If this locality can be confirmed, it seems to document a landfall of interest for Eights on the Patagonian coast. Isla Guafo (or Huafo) is a small island of 64 square miles 20 mi off the SW tip of Chiloé at 43°35'S. 74°45'W. Chiloé is a large island with many small ones off the SW coast of Chile, its southwestern point being 43°17'S. 74°26'W. The Galapagos consist of a group of 12 small or moderate sized islands on the equator at 91°25'W., some 600 mi west of Ecuador. Juan Fernández is a forbidding island of small size 400 mi west of Chile, at 33°45'S. 79°2'W. References to Cuming's travels in Note 4 are pertinent to his collections at Juan Fernández and the Galapagos. I end this inadequate account of localities by acknowledging my indebtedness to the many British naturalists and navigators (not cited here) who left their marks and names on all manner of geographic features in southern South America — usually with full descriptions and careful documentation.

6. "45th Annual Report of the Regents for the year 1891," New York State Museum Annual Report (1892), p. 20. For fossils, none of southern or Antarctic origin, see the careful record by J.M. Clarke.

7. "46th Annual Report of the Regents for the year 1892," New York State Museum Annual Report, (1893), pp. 24-27.

8. R.I. Johnson, "Joseph Pitty Couthouy — a bibliography and catalogue of his species," p. 39; John C. Jay, *A Catalogue of the Shells, arranged according to the Lamarckian System*, 3d ed., 1839, pp. 22, 113, Pl. 1, Figs. 12, 13; R.K.Dell, "The identity of *Yoldia* (*Aequiyoldia*) *Eightsii* (Couthouy, in Jay, 1839)," 1964.

9. Jay, 3d ed., as cited in Note 8; see biographical notes on Couthouy in R.I. Johnson, 1946, pp. 33-34. Proof enough that it was not until the third edition of Jay's *Catalogue* (1839) that Couthouy's *Nucula Eightsii* appeared may be found in notes of new species listed by W.G. Binney's "Bibliography of North American Conchology Previous to the Year 1860," p. 486.

10. S.C.T. Hanley, 1846, Plate 20, Fig. 2 + caption; Hanley, "On some new species of Nuculaceae in a collection of Hugh Cuming, Esq.," pp. 370-371, 1860; Hanley, "Monograph of the family Nuculidae, forming the Lamarckian genus *Nucula*," p. 142, Plate V, Fig. 164 + caption (in G.B. Sowerby, *Thesaurus Conchyliorum*, Vol. III, Pt. XX, 1860 (title page of volume is dated 1866); Dell, "The identity of *Yoldia* (*Aequiyoldia*) *eightsii* ...," 1964; I have had helpful correspondence from Solene Morris, Curator of Bivalves and Chitons, British Museum (Natural History).

11. R.K. Dell, "Antarctic and Subantarctic Mollusca: Amphineura, Scaphopoda and Bivalvia," pp. 146-147, Plate II, Fig. 11, 1963; Dell, "The identity ...," 1964, p. 247, and a notably good figure, p. 248; Margaret Crozier Richards and William E. Old, Jr., "A catalogue of molluscan type specimens in the Department of Living Invertebrates, the American Museum of Natural History,"

pp. 11-12, *Nucula eightsi*, holotype, A.M.N.H. 56119, 2 paired valves, Jay Collection 1447.

12. I.W. Rabarts and Solene Whybrow, "A revision of the Antarctic and Subantarctic members of the genus

Yoldia Moller, 1842 (Bivalvia: Nuculanidae)"; C.P. Nolan and Andrew Clarke, "Growth in the bivalve *Yoldia eightsi* at Signy Island, Antarctica, determined from internal shell increments and calcium-45 incorporation."

ANTARCTIC BIOLOGY: CRUSTACEA — *BRONGNIARTIA : SPHAEROMA : GLYPTONOTUS*

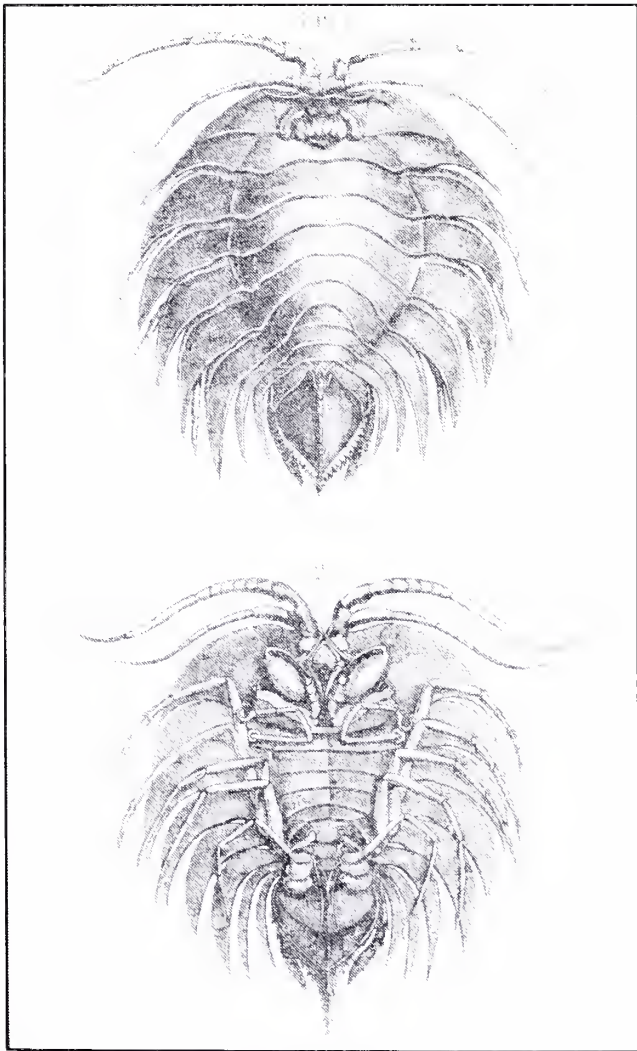


Figure 10.1. *Brongniartia trilobitoides* Eights, 1833, dorsal and ventral views. *Albany Institute Transactions*, volume 2. Now placed in the genus *Serolis*. See #10.2. The original drawing by James Eights is in the Albany Institute of History and Art.

While James Eights, to his hurt, shied away from naming his new species of mollusks, he must have felt more at ease with crustaceans. He named three supposed new species, two of which have been sustained. In the accounts that follow, his diagnoses are reproduced as originally printed. The notes on natural history of the South Shetland Islands, which accompanied the first of his species accounts, have already been reviewed in the chapter on his Antarctic adventure.

BRONGNIARTIA TRILOBITOIDES

The first of his crustaceans generated the greatest amount of discussion in his lifetime and, with modest suggestion from himself, became part of a long debate over its possible relationships to the great extinct group of arthropods called trilobites.

His effort to establish it as a new genus and species was only partially successful. Even if it had been entirely so, his effort to name the genus *Brougniartia*, in honor of a great authority on trilobites, was doomed, for that name had already been used for a trilobite. Having convinced himself that it no longer applied there, he incorrectly supposed he was free to use it for what he took to be a new genus of living crustacean.¹

Let us first have the paper, "Description of a new crustaceous animal found on the shores of the South Shetland Islands, with remarks on their natural history." It was by "James Eights,

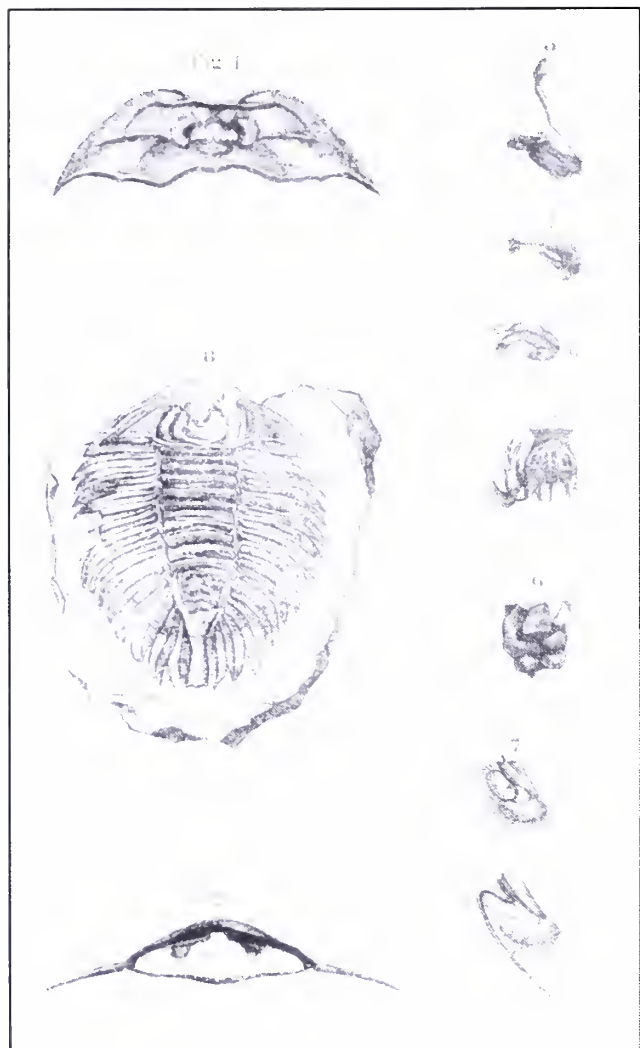


Figure 10.2. Major figure shows a long-extinct trilobite, *Arctinurus* (called *Paradoxus boltoni* by Eights), showing its superficial resemblance to Eights's *Brongniatia trilobitoides*. Authorities do not think these animals are related to modern crustaceans.

Albany Institute Transactions, 2, plate 2.

Naturalist to the Exploring Expedition of 1830, and Corresponding Member of the Albany Institute."²

Eights's genus and species diagnoses follow here, without quotation marks.

CRUSTACEA. / MALACOSTRACA. / BRONGNIARTIA.

Animal broad-oval, much depressed, trilobate, lobes formed by a slightly impressed sulcus; divided from the head downwards into eight articulations, and a terminal cordiform

tail: *teguments* solid and calcareous. *Eyes* two, superior, sessile and immoveable. *Antennae* four, on a line with the margin of the shell. *Mouth* inferior, composed of a labrum, two mandibles bearing palpi, two pair of maxillae, tongue, and a labium formed of the first foot-jaws. *Feet* fourteen, anterior four with a dilated hand, and an incurved moveable finger, remaining ten unguiculate. *Branchiae* situated under the post-abdomen in pairs. *Tail* with foliaceous fin-like appendages on its lateral edge, inferiorly it supports four pairs of diaphanous laminae.

B. TRILOBITOIDES.

Head approaching the segment of a circle, descending from the vertex to its anterior portion, and laterally to the edge of the margin, which is slightly serrate; anterior extremity terminated by a broad sinus, having a narrow, raised and reflected rim, furcate at each extremity: posterior edge gently elevated, sinuous, and corresponding to the articulation of the abdomen. *Eyes* elevated and prominent: cornea oblong, lunulate, reticulate, composed of an infinite number of facets, distinctly visible to the naked eye: colour blue, the superior surface covered by an irregular calcareous incrustation: from the posterior and external angle of the eye extends a suture forward and outward, dividing the front and anterior portion of the head from its lateral expansion; at the origin of the suture commences a transverse furrow, overshadowed by a narrow reflected rim, which gradually becomes obliterated at the outward margin, giving to the posterior portion of the head somewhat the appearance of a distinct segment: a second narrow rim commences near the termination of the suture, extending backwards until it almost bisects the transverse one near the margin. The *Front* between the eyes is raised to a line with them, assuming in appearance somewhat the figure of a corona in high relief; posterior to it is an elevated angle bearing a small tubercle of a dark colour, resembling an ocellus; between the anterior angles of the eyes is also a reflected sinuous rim, rising to the same height. *Antennae* four, inserted one above

the other by a tri-articulated peduncle into the sinus of the anterior portion of the head, contiguous at the base, setaceous, a three-jointed clavola with a terminal pluri-articulated stem, the inferior projects forward and rises to an equal height, so that the four antennae appear as if situated on the same line: superiorly, the segments are longitudinally grooved, inferiorly crossed, the shortest by three, the second six, and the external one by five ciliate elevations; superior one two thirds, and inferior one half, the length of the animal. *Labrum* attached to the nasi anteriorly, triangulate, slightly punctate, with two central depressions. The body of the *Mandibulae* are somewhat trapezate, with an angular dental process, armed, the one on the left with two corneous teeth, placed one within the other, that on the right contains but one, they are convex externally and internally concave, with a small foramen at their base. A pediform three-jointed palpi is inserted into the base of the mandible, the first segment about equal in length to its body, lies in a deep groove on its anterior margin, the middle one corresponds in size, terminal one half its length, subovate, dilated and compressed, with a ciliate inferior edge. *Maxillae*, two pair, inserted at the side of the mentum; superior one simple, apex armed with six rigid spines, arranged in a triple series: inferior, compound, the upper lobe covering the lower externally, and is cleft almost to its first articulation, giving to the maxillae the appearance of being three-lobed: the apex of each is furnished with flexile spines. *Tongue* linguiform, with an acute apex, cartilaginous, short and retractile. The appendages corresponding to the first foot-jaws approximate closely to a true lip, each being furnished with a palpus, they rise up to the mandibles, meeting each other at a line in the centre, so as to close effectually the lower portion of the mouth; they are somewhat rhomboidal in form, and divided into four subequal portions by both a longitudinal and transverse articulation: the palpus is situated superiorly near its inner margin and is composed of a small peduncle supporting a sub-triangulate, dilated segment, the anterior edge of which is fringed with cilia, and a terminal subovate one containing a row of hairs on its

extreme edge: when these two lips meet in the centre the parts are osseous and triangular; the apex is armed with a small rigid tooth. The first pair of feet corresponding to the second foot-jaws, are attached to the head a short distance from the lower lip, laterally; they are directed forward and laid on the mouth in such a manner as if constituting one of the organs of manducation, six-jointed: the second, third and fourth nearly equal, short and irregular, seeming to form a kind of wrist for supporting a rather large, subovoid, dilated hand, with a terminal incurved finger reflected on its inner ciliate edge. *Abdomen* with five transverse articulations, somewhat arcuated backwards, their posterior margin is slightly elevated so as to suffer the anterior edge of the following ones to pass under them; the three first segments have their lateral portions divided at the sulcus by a deeply impressed line, or suture, which may be disunited by macerating the parts in water, otherwise they are immovable; the remaining two are entire: the lateral parts are falcate and separated from each other by an incisure extending to the longitudinal sulcus, near which, both on their anterior and posterior edges, is situated a small tooth-like process; a narrow elevated rim runs along the anterior margin until it becomes obsolete near the external slightly serrated edge. The second pair of feet corresponding to the third foot-jaws, are attached to the first segment after the head, and also seem to assist in the process of manducation; they are more slender than any of the other feet, the first joint is longest, the penultimate one slightly dilated, forming a hand with an incurved moveable finger. The four remaining segments are each furnished with a pair of six articulated coriaceous feet, resembling each other both in size and appearance, being largest at the base, and gradually attenuated to the slightly curved terminal nail; the first segment is much compressed, the succeeding ones tubular and armed at the apex, both forward and behind, with a number of small moveable spines; on their anterior edge are one, two or more small processes armed in like manner. The sexual organs are double, and situated near the origin of the posterior pair of the last mentioned feet. The *Post-Abdomen* is

divided into three articulations, and a terminal cordiform appendage constituting a tail proper. The anterior segment has no lateral elongation, in place thereof its extremities are produced inferiorly, giving insertion to the posterior pair of true feet; these feet differ only from the preceding ones, in being rather smaller and having the terminal nail more curved. The two last segments are somewhat similar to those of the abdomen, though inferior in size. The three segments have on their under sides each a pair of pediform appendages, composed of a single compressed joint, to which are attached one about midway, the other terminal, two subovate vesicular bursae, fringed with branchial fibres: the inferior ones of the middle pair have inserted along their inner edge a flexile setaceous style, extending backwards about twice the length of the whole appendage. *Tail* cordiform: a raised and reflected rim terminating in an acute spine near the outward margin, gives the anterior part the appearance of a distinct segment; longitudinally through the centre is an elevated, sharp, muricate ridge, terminating the end of the tail with an attenuated spine; at its base are situated a pair of short and reflected teeth: the posterior margin is slightly elevated, having its edge armed with a row of sharp spines pointing backwards; on the outer edge are two narrow, rather thick, serrate and acuminate leaflets, inserted into a moveable peduncle; their motion is lateral, and when at rest the superior shuts over the inferior one like the sticks of a fan. At the origin of the tail inferiorly, on each side of the vent so as to conceal it, are inserted in pairs eight membranous laminae, meeting each other by a longitudinal line in the centre, when they form the perfect figure of a heart; they are entirely covered by the external pair, which is rather thicker, and is diagonally articulated.

Males more numerous than females.

Females carry their ova between scales under the thorax. *Ova* orbicular, nearly a line in diameter, of a fine orange colour. Colour of the animal, an olivaceous green. Length two and three quarter inches. Breadth two and one quarter.

Hab. Seas, along the coast of Patagonia, Cape

Horn, New South Shetlands.
Cabinet of the Albany Institute.³

Professor Eaton, in his Geological Text-Book, has created a genus of Trilobites, to which he applies the name *Brongniartia*; comprising *B. isotela*, (*Isotelus gigas*. De Kay.) *B. carcinodea*, (*Triarthrus Beckii*. Green.) and *B. platicephala*, (*Asaphus platycephalus*. Stokes.) Dr. Green in his Monograph of Trilobites, has justly thought proper to retain the genus of Dr. De Kay. His second species is the head of either an *Asaphus* or *Paradoxide* of *Brongniart*, and was previously described by Green, leaving the *A. Platycephalus*, which is well known to come under the genus *Isotelus*. The name of *Brongniartia* then, being unoccupied, I have employed it for this interesting animal, in honor of Professor Alexander Brongniart, not only for the eminence he has attained in science, but in consideration of his having been the first individual that ever attempted a systematic arrangement of the trilobites; and *trilobitoides*, from its resemblance both in form and appearance to these fossils. [See the paragraph below.]

Explanations of the Plates will appear as captions to the illustrations and are not copied here.

In the rest of Eights's paper, he described the natural history of the South Shetland Islands; this material, with the exception of the initial paragraph, has already been analyzed. That paragraph, since it concerns his *Brongniartia*, is given here.

"During one of those calms which most generally succeed to the celebrated 'Pamparos' along the coast of Patagonia, the seamen employed themselves in catching some of the fine bottom fish, that are so abundantly to be obtained after making soundings. They comprise chiefly the whole of Cuvier's family of Gadites. On examining the contents of the stomach of several of an undescribed species of Phycis, I was struck by the resemblance of some Crustacea that I obtained, to the *Paradoxus boltoni*, figured and described in the fourth volume of the Journal of the Academy of Natural Science of Philadelphia. On referring to that

work, which I fortunately had on board, I was convinced that this animal came nearer to the long lost family of Trilobites than any thing hitherto discovered. They were scarcely more than an inch in length, and most of them partially decomposed. That part which particularly attracted my attention, was the lunate markings on the head of Dr. Bigsby's figure, corresponding in a wonderful manner, both in form and situation, to the eyes of this animal, although the fossil is represented as being deficient in these organs. In fact, I think it doubtful if any of the trilobites were destitute of eyes, the circumstance of their never having been found in some of the few fragments that we possess any knowledge of, is certainly no evidence that they did not exist. In some of the Crustacea that I collected in the southern ocean the eyes are extremely small and situated on the external margin of the head, very near to its edge: had but a small portion of this part of the shell been mutilated, we should have been put to no small difficulty in assigning to them organs of vision."⁴

It is appropriate to introduce here a short note that James Eights published in 1852. The Institute, having fallen on bad times many years before, resumed publication of its *Transactions* and gave him a chance to admit an error in naming his new species. It was not in regard to the inadmissibility of "Brongniartia" but the fact that his species belonged to the previously named genus *Serolis*. By this time, the correct generic allocation of his species had already been noticed by others. Eights wrote as follows: "In the second number of this volume, I have described a Crustacean, under the new genus *Brongniartia*. A few years later the figure of a *Serolis* (Leach,) was given in Dr. Buckland's volume of the Bridgewater Treatise; though much smaller in size, every one must be struck with the close resemblance of the two. At the time my article on this animal was published, there was nothing but a description of the genus *Serolis* that I could have access to, and in all the works containing it, it was [incorrectly, he means] described as being destitute of *Palpi* to the mandibles. In the *Brongniartia*, these [those] organs are strikingly palpigerous, a dis-

tinguishing character, which must remove it, not only from the genus *Serolis*, but also from the order to which that animal belongs. James Eights."⁵

Eights's article on *Brongniartia* brought him a goodly measure of fame, if we include the natural history part as well as the description of the new species, both in the popular and the scientific press, although the latter got afloat rather clumsily and skimpily. Its possible trilobite relationships were rather overblown by uncritical fellow scientists who made more of them than he did.

The paper gained immediate notoriety from a doubly unfortunate notice, presumably by Benjamin Silliman, editor of the *American Journal of Science*. He announced its publication, obviously more from memory than evidence: "Modern trilobites of New South Shetland." He had meant, he wrote, to provide a lengthier notice of the paper "but the work having been mislaid, we have not been able, after much search, to find a copy of it and of course could not fulfil our design." Thus Eights's "living trilobite" was overemphasized while he missed a prime early chance to have the entire work properly brought to the attention of scientists in the premier American scientific publication of that era.⁶

There was a limited acknowledgment from abroad in 1835. A French zoological periodical carried a translation of Eights's description of the new species, "Sur le *Brongniartia trilobitoides*, nouveau crustacé de l'Amérique meridionale." The illustrations were not copied and the general natural history part was ignored. The natural history section of the paper fared much better, being reproduced several times between 1834 and 1856.⁷

BRONGNIARTIA AS A LIVING TRILOBITE

This matter was, surprisingly enough, not laid to rest until near the end of James Eights's life. That was partly due to the tenacity with which defenders of belief in a generic relationship between certain Crustacea and the long-extinct trilobites clung to their convictions.

Right or wrong, the view was a popular one with respected zoologists, even as others were already preaching a new dispensation.

The first to notice so great an oddity as a living trilobite in possession of James Eights was Constantine Samuel Rafinesque. His Johnny-at-the-rat-hole awareness of all the latest news need surprise no one. From Philadelphia, he wrote to John Torrey in New York City on 6 March 1831 of his anxiety to hear more of Dr. Eights's "living trilobite."⁸

The notion of a living trilobite was quickly taken up; both paleontologists and general geologists were ready to admit the discovery. Jacob Green, early American authority on trilobites, wrote to Albany Institute curator T.R. Beck, who had a long-continued interest in these fossil forms, in June 1832: "Could you not through our friend M.H. Webster Esq^r get from Eights, his recent trilobite for my monograph[?] I had hoped before this that he would have sent me a drawing — Our naturalists doubt the fact of the identity of his animal with any of the fossil genera — I would give a good plate of it — name it — discet [!] it, & all that kind of thing — Your Institute will loose [!] it by design [?] or accident if it is not soon attended to — I am not very anxious to describe it myself but I want it to give a finish to all theories on this subject — If the bottle containing one were sent me — thats all — [.]"⁹ (By "recent," Green meant "living.")

That Green was not averse to the idea of survival of living trilobites (perhaps even to their kinship with modern Crustacea) is evident from a statement in his *Monograph* of 1832. Pointing out "the strong analogy which exists between them and certain species of crustaceous animals now living, it is highly probable that they will yet be found alive." Only a small portion of the earth had yet been explored; "many animals as confidently declared to be peculiar to a former world, are now found to be among the creatures at present in existence." Thus, he was not ready to conclude "that all the trilobites are confined to an order of things before the present glorious creation." Clearly, Green wrote his book as he gathered information, for he ended it with an essay on the

"Nature of the Trilobite," in which he outlined various views of the controversy among naturalists "respecting the precise link in the grand chain of organized beings, these singular fossil animals, should occupy." He goes on: "It was our original intention to have closed this Monograph with a short history of these theories — and of the notion advanced by Latreille and others, that the Trilobites have been annihilated by some ancient revolution of our planet. All these matters, we think, are now put to rest by the late discovery of some living Trilobites in the southern seas, near the Falkland Islands. In the cabinet of the Albany Institute, we have examined some of these recent animals, which have very nearly the size and general appearance of the *Paradoxides Boltoni*, as represented on our frontispiece; the species cannot, however, belong to that genus, as the buckler is furnished with eyes very similar to those of the *Calymene Bufo*; its organs of locomotion are short, numerous, and concealed under the shell — but I do not feel at liberty to notice the interesting animal more minutely. It will probably be described and figured shortly, in a perfectly full and satisfactory manner, by Dr. James Eights, the enterprising discoverer, together with several other new and remarkable genera and species belonging to the Entomostraca."¹⁰

Local support for the notion of a living trilobite was not lacking. In a note written from the Rensselaer School, 6 March 1832, Amos Eaton informed the editor of the *American Journal of Science* of recent advances in the study of trilobites: "I have now before me a specimen of what appears to be a living trilobite, collected on the beach at Cape Horn [!], by Dr. James Eights, of Albany. It certainly appears to be of the same genus [as Eaton's *Brongniartia*, shown by Eights to be inapplicable] and very closely resembling in most specific differences, the fossil specimens from the Mohawk. Dr. E. has, what I believe to be another species of trilobite, which he found at New Zealand [did he mean New South Shetland?]. Both of these he will soon publish with figures...."¹¹

In the second edition of his *Geological Textbook, for Aiding the Study of North American Geology*, Amos Eaton introduced a footnote to

his account of the trilobites: “Brongniart, in his excellent ‘Natural History of Crustaceous Fossils,’ refers to *crustaceans articulata*. Latreille refers them to the Chiton family of the *multi-valve mollusci*. I was inclined to Latreille’s opinion, until Dr. James Eights, of Albany, brought home a collection of crustaceous animals, made by himself in the Southern Ocean. Assuming Brongniart’s definition of a trilobite, Dr. E. has certainly two species (and I am inclined to believe he has three) trilobites, which are now living in those seas.” He twice more inserted footnotes in regard to the same matter.¹²

Thus did Jacob Green and Amos Eaton carry the name of Eights into a long-lived controversy among zoologists on the similarities of trilobites to isopod crustaceans. In regard to the very first such crustacean that is now put in the genus *Serolis*, Johan Christian Fabricius (1745–1808), in 1781, had wondered about its affinities with trilobites. W.E. Leach and Anselme Gaëtan Desmarest (1784–1838) had been cool to the notion of trilobite–crustacean relationships. Jean Victor Audouin and Henri Milne Edwards (who promptly realized Eights’s “Brongniartia” to be a *Serolis* [1841]), strongly favored the notion of close relationships between trilobites and isopods. C.D. Walcott (1881) summarized arguments against the idea, but his views were still contested by Milne Edwards (1881). This was not merely good zoologists versus poor zoologists: It was a wonderfully complex matter, involving — if not relationships — some of the most beautiful known examples of evolutionary parallelism.¹³

There remains a strange episode to be disposed of, before the final history of *Serolis trilobitoides* (Eights, 1833) can be laid to rest. I refer to what may be called The Agassiz Affair.

With the fanfare that the public came to associate with Louis Agassiz, the editorial page of the New York *Tribune*, 28 March 1872, noted that “another letter from our correspondent with the Hassler Expedition...gives some curious and interesting information relative to the recent discoveries of Prof. Agassiz. His deep-sea soundings have brought to the surface a new crustacean which seems to stand outside of all previous classifications. This creature, supposed

to be related to the trilobites of the carboniferous era...also helps to fulfill some of the predictions which the great naturalist made before sailing.” Such adulation was bread and butter to Agassiz. Agassiz’s letter, under the heading “The Hassler Expedition / Letter from Prof. Agassiz / Another fulfillment of his prophecy — Discovery of a new crustacean,” fairly glowed with self-congratulation. In releasing to the press this ostensibly private letter to Prof. Peirce of Harvard College, Agassiz had multiple motivations: one being thus publicly to notify Peirce of an honor to be bestowed upon him. Dated 12 February, Agassiz described successful dredges at night in 45 fathoms of water. “In my first letter...concerning deep-sea dredgings, you may have noticed the paragraph concerning crustacea, in which it is stated that among these animals we may expect ‘genera reminding us of some Amphipods and Isopods aping still more closely the Trilobites than *serolis*.’ A specimen answering fully to this statement has actually been dredged....It is a most curious animal. At first sight it looks like an ordinary Isopod, with a broad, short, flat body. Tested by the character assigned to the leading groups of crustacea, whether we follow Milne Edwards, or Dana’s classification, it can, however, be referred to no one of their orders or families. As I have not the works of these authors before me, I shall have to verify more carefully these statements hereafter, but I believe I can trust my first inspection.” It was very like *Serolis* but, he thought, different in important ways. Despite his not having relevant literature at hand — however strange that would seem — he went on at length and in great detail to mark out his territory, yet careful to leave escape hatches, trusting, if all else failed, to blame any unfavorable outcome on his poor memory and lack of reference books. Was the creature a crustacean? Was it a living trilobite? All issues were hedged. There is the usual double talk about “synthetic types” as opposed to “natural groups” “which, without being strictly synthetic themselves, have nevertheless characters capable of throwing light upon the whole subject.” It is, finally (perhaps!) merely a remarkable new crustacean, which he diagnoses (without literature!), as

Tomocaris Peircei, in honor of the recipient of the letter.¹⁴

Agassiz was not long, both in matters of self-fulfilling (and self-aggrandizing) prophecy and of zoological identification, in finding himself challenged. In the *American Journal of Science*, S.I. Smith recapped Agassiz's diagnosis and went on: "From the details of Professor Agassiz's description, the animal is evidently one of the Serolidae, apparently congeneric, perhaps specifically identical, with the *Brougniartia trilobitoides* of Eights." Smith dismantled Agassiz's case item by item and all claims of any consequence were dismissed.¹⁵

At the Albany Institute, 7 May 1872, there was a complaint registered against Agassiz, as well as some soul-searching among his friends. R.P. Whitfield rose to protest with faint praise: He "read several extracts from the *Tribune* article to show the form and nature of the newly discovered crustaceans, and then stated that it might be questioned whether this was the first discovery of crustaceans possessing these peculiar trilobitic characters. He thought they had been long known to science, and stated that it was undoubtedly to a member of the Albany Institute that the credit of their first discovery belonged. He stated that if we refer to the second volume of the Institute *Transactions*, page 53, we shall find the description of a species possessing most if not all the peculiar characters of Professor Agassiz's species, in a paper communicated to the Institute on the 10th of July, 1836, by James Eights of Albany."

Whitfield went on to describe Eights's discovery and its endorsement by Jacob Green, Amos Eaton, and others. He exhibited an enlarged view of *Brougniartia* and *Serolis*, compared these with Agassiz's description, and concluded that there was "very close resemblance, if not positive identity of structure of the two." His view was confirmed by the article of S.I. Smith, which had come to hand after his own remonstrance was prepared.

James Hall, then vice president of the Institute, had no doubt in the matter and wondered "that Professor Agassiz, who was formerly familiar with Dr. Eights's discovery, should have so far forgotten it as to have recently pre-

dicted that such an animal might be found in the Southern seas." He was not prepared to charge Agassiz "with knowingly ignoring the former discovery"; perhaps "such knowledge once possessed may have escaped recollection, and that the omission to recognize it was purely accidental." James Eights, still living but too ill to attend the meeting, agreed that Agassiz's species was the same as his own.¹⁶

BRONGNIARTIA AND SEROLIS, A TAXONOMIC HISTORY

Eights's difficulties with his attempted recycling of the name *Brougniartia*, as well as his early unawareness of the true nature of the Isopod genus *Serolis*, soon became apparent. This was made clear in the way that good taxonomists deal with such matters: by reallocation of the taxon, if viable, to its appropriate superior category. He was dealt with in an authoritative manner, in a way that made his work zoologically respectable and that also sustained his good judgment in recognizing a new species. In 1841, Jean Victor Audouin and Henri Milne Edwards recognized that Eights had named a new species of *Serolis*. It was likewise illustrated on a beautiful plate.¹⁷

In a contribution on the lower animals of Kerguelen Island, Théophil Studer treated the genus *Serolis* and, using information on Eights's *S. trilobitoides* supplied by Audouin and Milne Edwards, concluded that it was the same as his new species *Serolis cornuta*. His references to the zoogeography of Kerguelen reflect the same decision.¹⁸

Frank E. Beddard's account of the species of *Serolis* collected on the voyage of HMS *Challenger* treated trilobite affinities of the Isopoda circumspectly. He accepted the decision of Audouin and Milne Edwards that Eights's crustacean belonged to the genus *Serolis* and noted Eights's rather skimpy argument that the species was a living trilobite. Beddard did not think highly of the species, supposing it to be "identical with Studer's *Serolis cornuta*, or at most a local variety." He supplied large, beautifully detailed illustrations of *Serolis cornuta*.¹⁹

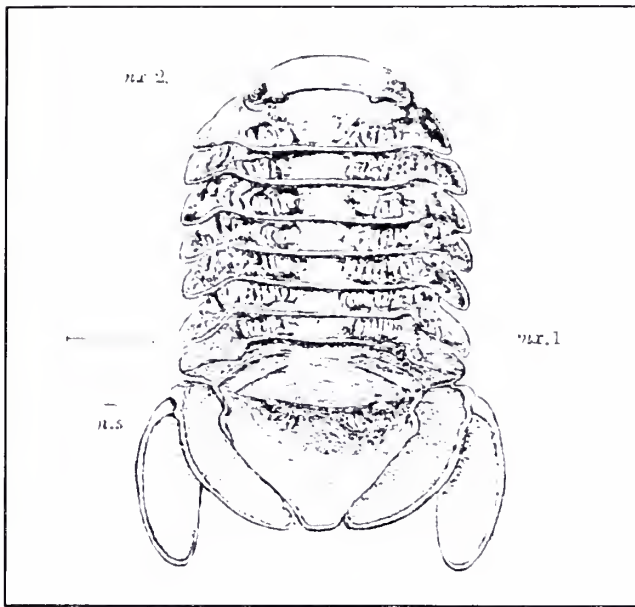


Figure 10.3. *Exosphaeroma gigas*, a living crustacean that James Eights figured in a report on fossil trilobites, and called *Sphaeroma bumastiformis*. His interest was in its ability to roll itself into a protective ball, as it appears many trilobites could do. Adapted from T.R.R. Stebbing, *Proceedings of the Zoological Society of London*, 1900, Plate 39.

In his "Crustacea of South Georgia," Georg Pfeffer accepted *Serolis trilobitoides* Eights without comment, but did so only from Beddard.²⁰

In the present century, it appears that *Serolis trilobitoides* has gained general acceptance, as indicated by E.M. Sheppard's study of the Family Serolidae.²¹

THE STRANGE CASE OF EIGHTS'S *SPHAEROMA BUMASTIFORMIS*

The second of James Eights's Antarctic Crustacea has an odd history. It was tucked into an account of the trilobites of New York by his friend Ebenezer Emmons Sr. There, its history consists of three views in a woodcut illustration and a lengthy footnote ("furnished by Dr. James Eights") to a list of "Fossils [!]" represented in the woodcuts," under the name *Sphaeroma bumastiformis*. The footnote follows.

"*Sphaeroma*. Latreille [sic]. Antennae four, very distinct, setaceous, terminated by a multi-articulate filament; the lower pair longer than the upper, and inserted beneath its basal joint.

The anterior portion of the head, situated beneath the antennae, is rudely triangular. The mouth, as usual to the Isopoda. The tail is composed of but two complete and mobile segments; the first of which, however, exhibits impressed and transverse lines, indicating vestiges of the usual number of segments. The subcaudal branchiae are soft, naked, and disposed longitudinally in pairs; these appendages are curved inwards, and the inner side of the anterior pair is accompanied in the males with a small linear and elongated piece. The posterior extremity of the animal, on each side, is furnished with a swimmeret, terminated by two plates, the inferior one alone moveable; the upper is formed by an external elongation of the common support.

"*S. bumastiformis*. Eights. Animal subovate, oblong, very smooth, not serrated. Color olivaceous green; under side, legs, and segmentary margins, pale ochraceous. Head a transverse square, inserted in a notch of the first abdominal segment. Eyes lateral, reniform, closely approximating to the anterior portion of the first segment. Superior antennae slightly longer than the head, three-jointed; the basal joint subangular, much enlarged, and solid; terminating filament composed of numerous small and short articulations. Inferior antennae nearly double the length of the upper, four-jointed, and ending with numerous short and smaller joints. Abdomen articulated into seven subequal segments, each containing beneath a pair of perfect legs. Legs rather stout, each terminated by a strong slightly incurved nail. The segmentary impressed lines on the basal segment of the tail do not extend to its lateral edges; the terminating segment is triangular, and entire. The swimming fins are much depressed; the superior one extends nearly the length of the segment; the lower one is about two-thirds its length, and closes in under the superior one similar to the sticks of a fan. The subcaudal branchial laminae are bifid; one portion articulating on the other, not unlike the palpi on the jaw appendages. These laminae are eight in number.

"In consequence of the near resemblance of this animal to the fossil genus *Bumastus*, it has

received its specific appellation. When in a state of contraction, it assumes the form of a ball.

"Found in considerable abundance in pools left by the receding tides, along the shores of Cape Horn and its adjacent islands."

The purpose of showing the species, called here a "recent [that is, living] trilobite," Emmons noted, was to show why so little was known about legs, and so on; in species of trilobites that shared the habit of folding themselves into a ball when disturbed.²²

General agreement is that Eights struck out with *Sphaeroma bumastiformis*. He claimed only new species status for it, of course. He was incorrect to credit the genus *Sphaeroma* to Latreille — its author was W.E. Leach. Indeed, Calman pronounces it Leach's species *gigas* of 1818. It was beautifully illustrated by Thomas R.R. Stebbing, who created the new generic combination *Exosphaeroma* based upon Leach's species.²³

A SOLID HIT: GLYPTONOTUS ANTARCTICA

With the third and last of James Eights's crustaceans, we view a man a generation removed from the Antarctic adventure when it was collected. Overall, it was well received, both by his contemporaries and by later workers. As we shall see, it was a busy time for him, if one rather shrouded in mystery. Why *Glyptonotus* waited so long to appear and other species of animals were never accounted for, we shall never know.

The paper, apparently presented in person, was entitled "Description of a new animal belonging to the Crustacea, discovered in the Antarctic Seas, by the author, James Eights. / [Cabinet of the Albany Institute.]." It is copied below.

Genus *Glyptonotus*. (Eights.)

Animal composed of a head, thorax, and post-abdomen or tail, constituting in all thirteen distinct segments.

Head deeply inserted into the cephalic segment of the thorax. *Eyes* sessile, and finely gran-

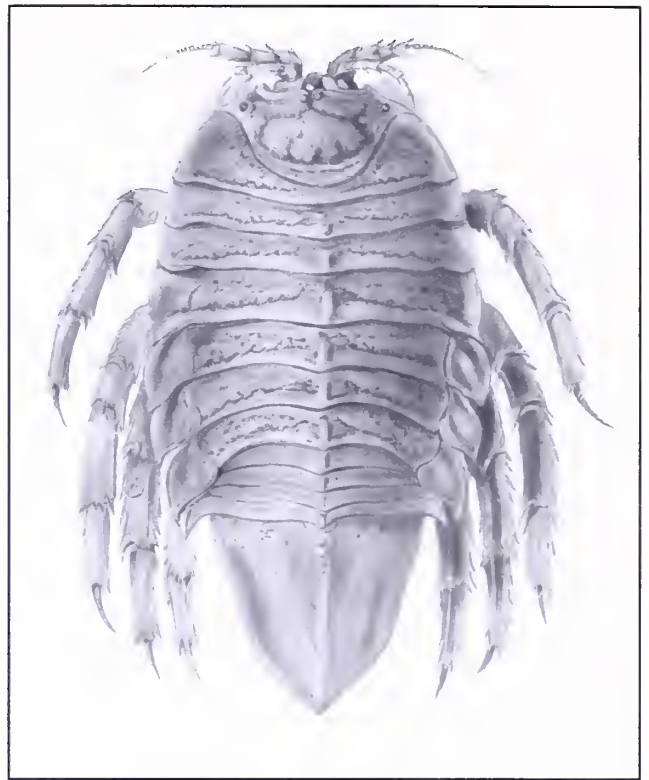


Figure 10.4. Dorsal view of *Glyptonotus antarctica*. In *Albany Institute Transactions*, volume 2. From drawing by James Eights, the original of which is in the Albany Institute of History and Art.

ulate. *Antennulae* two pairs, placed one above the other, with an elongate multiarticulated filament. *Mouth* as in the ordinary Isopods; mandibles not palpigerous; the two superior foot-jaws expanded into a well defined lower lip, bearing palpi.

Thorax separated into seven distinct segments, the three posterior ones biarticulate near their lateral extremities; each segment giving origin to a pair of perfect legs, terminating with a strong and slightly curved nail.

Post-abdomen, or tail, divided into five segments, provided with neither styles nor swimmerets; the under surfaces each supporting a pair of branchial leaflets, longitudinally arranged, and covered by two biarticulated plates attached to the outward edges of the last segment, closing over them much in the manner of an ordinary bivalve shell.

Species *G. antarctica*. (Eights.)
Antarctic Sculpture-back.

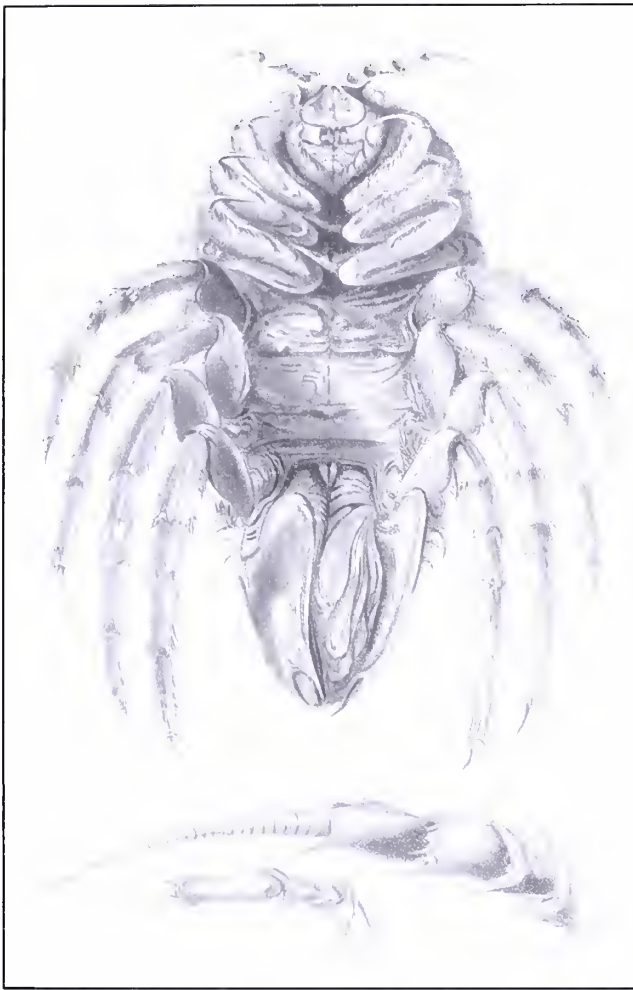


Figure 10.5. *Glyptonotus antarctica*, ventral view. *Albany Institute Transactions*, volume 2, 1852. From James Eights drawing of which is in the Albany Institute of History and Art.

Animal perfectly symmetrical, ovate, elongate, and depressed. Teguments solid and calcareous. Color, brown sepia. Length, from the insertion of the antennae, three and a half inches; width, one and three quarters.

Head transversely elliptical, terminating at its lateral and anterior corners acutely, and incurved; anterior margin obtusely elevated, and arched each way to its centre. Superior surface of the head ornamented with an imperfectly sculptured "fleur-de-lis;" posterior portion obtusely elevated, producing a marginal rim. *Eyes* small, reniform, indigo blue, and placed near the lateral and anterior portion of the head, so deeply impressed in the margin of the shell as to be easily distinguished from beneath.

Inferior pair of *antennae* longer than the superior, corresponding in length to the width of the head, transversely, from spine to spine; articulations four in number; last segment longest, the remaining three gradually diminishing in length as they proceed to the place of insertion; segments triangulate, with angular projections on their surfaces; edges of the angles, and articulating extremities rigidly spined. Terminating filament about the length of the basal articulations, gradually attenuated until it diminishes to a finely pointed apex. Superior *antennae* half the length of the inferior, three-jointed, and terminating with an attenuated filament whose articulations are indistinct; segments angular, external one much the longest; extremities and angles likewise spined. *Mouth* with the labrum or upper lip hard and massive, resembling in form a reversed heart. The mandibles are without palpi, stout and osseous, tipped with a hard and black enamel. The maxillae are furnished with the usual palpi. The lower lip, or superior foot-jaws when united, sub-cordate; its palpi five-jointed, snugly embracing the manducatory organs along their base, like a row of ciliated leaflets.

The *thorax* is composed of seven distinct segments, each one being beautifully ornamented on its superior surface by an elongated and sub-conic insculptation, forming a series, whose pointed apices almost unite along the longitudinal dorsal ridge. These segments are finely bordered along their posterior articulating edges by an elevated and continuous marginal rim, extending to the lateral extremities of the shell. The cephalic depression is likewise margined by an obtusely elevated border. Each segment of the thorax gives origin, beneath, to a pair of ponderous angulated legs, composed of the ordinary parts. The three anterior pairs project themselves forward, and are closely compressed upon the inferior surfaces of the three foremost segments; they are monodactyle, with the nails incurved upon the anterior edges of the rather largely inflated penultimate joint. Each joint is furnished at its articulating extremity with rigid spines; the inner edges of the penultimate joint, together with those of the three adjoining, are provided with a double row

of tufted cilia, disposed diagonally, and much resembling in appearance the arrangement of hairs in an ordinary brush. The four posterior pairs of legs are directed backwards, strongly triangulate, stout and ponderous, terminating by a slightly curved nail; their length is nearly equal, but they gradually increase in thickness as they recede toward the tail. The basal joints are large and inflated; the remainder regularly angulate. The extremities of the articulating joints, and edges of the two inferior angles, are each provided with a series of tufted and rigid spines.

The *post-abdomen* is composed of five segments. The four anterior ones are much smaller than those which constitute the thorax, but greatly resemble them in form, being ornamented on their superior surfaces with similar insculptations, though but slightly defined. Each of these segments is provided beneath with a pair of articulated pedicels, which furnish a support to the bifoliated bronchial leaflets. These leaflets are arranged longitudinally one upon the other, and are entirely concealed by the biarticulated plates of the caudal segment; they are subovate and elongate; the outward ones smaller than those which they cover, and are nearly surrounded by a fringed cilia, most conspicuously developed along their inner margins. The second pair are each supplied with an elongated style, extending almost to the termination of the caudal segment. The terminating segment is large and triangular, giving attachment to the biarticulated plates at a single point on its outer margins near the base, which enables the animal to close them together in a line along its centre beneath. These plates are about the length of the segment, and of a triangulate form, each one having near its termination a small oval articulation. The segment and marginal plates are slightly inflated along their external edges, producing an obtusely elevated border.

The segments constituting the thorax and post-abdomen are supplied by a central, angular, and elongated knob, which, when united, form a prominent dorsal ridge, gradually diminishing in its backward course, and forming a sharp elevated line along the caudal seg-

ment, terminating at its extremity in a short and obtusely pointed spine.

This beautiful crustacean furnishes to us another close approximation to the long lost family of the *Trilobite*. I procured them from the southern shores of the New South Shetland Islands. They inhabit the bottom of the sea, and are only to be obtained when thrown far upon the shores by the immense surges that prevail when the detached glaciers from the land precipitate themselves into the ocean."

Two plates of Eights's excellent drawings accompany the report, showing dorsal and ventral views, natural size, of the animal, with magnified views of an inferior and superior antenna.²⁴

Glyptonotus received two notices in the *American Journal of Science*, the first a short note in 1853, that was itself reprinted later in the year in London in *Annals and Magazine of Natural History*; the second in 1856 was a full reprinting.

The short notice announced "A new genus and species of Crustacea; by James Eights" that was "remarkable for its gigantic size" and for some other peculiarities. The name was given, the source was given without indication of volume or pagination, and it was said to be "accompanied by two handsome plates."²⁵

Without any intimation that the two had ever met or even that Eights might still be alive, the editor of the *American Journal of Science*, James Dwight Dana, republished in 1856 both plates and description of *Glyptonotus*, supplementing the latter with an unhurried reprinting of nearly all the natural history notes from Eights's paper on *Brongniartia* of 1833 — which, it will be recalled, was in a copy of the Albany Institute *Transactions* that the contemporary editor had misplaced. Dana, not entirely willing to relinquish his position as undoubted lion of systematic invertebrate zoologists, provided a lengthy foreword of evaluation, partly systematic, partly zoogeographic, of isopod crustaceans, of which Eights's new species was a giant representative. Dana was reluctant to accept it as a new genus but thought "it will probably be sustained on the ground of the form of the head, the character of the abdomen,

and perhaps the distinctive peculiarities of the 6 anterior legs."²⁶

Glyptonotus antarctica waited until 1887 before it was noticed again. Georg Pfeffer used the generic name in describing the Crustacea of South Georgia discovered by the German Exploring Expedition of 1882–1883.²⁷

NOTES

1. Alexandre Brongniart (1770–1847), whose *Histoire Naturelle des Crustacés Fossiles...Les Trilobites* (Paris, 1822) Eights knew well, was a noted French geologist, mineralogist and chemist. W.T. Calman, "James Eights, a pioneer Antarctic naturalist," p. 176, refers to Eights's "rough and ready treatment of the principles of nomenclature" but notes sympathetically that his diagnosis of it as a new species has been confirmed.

2. It was communicated 10 Jul 1833, at a special meeting of the Institute, according to the Minutes, where "a description of a new crustaceous [!] animal . . ." was read by Mr. M.H. Webster. Does this mean that Eights was not present? Since he was listed as Corresponding Member, perhaps he had to have a sponsor. For Matthew Henry Webster (1803/1804–1846), see J. Henry, *Papers*, I: 62, note 3. A manuscript copy, still in archives of the Institute, was deposited; in March 1836, according to the Catalogue of Properties, Eights gave his original drawings of the creature to the Institute, where they still reside.

3. No such specimen was among Crustacea transferred from Albany Institute to the State Museum; see report of 1892 (N.Y. State Museum, 1893, p. 22). *AI Transactions*, vol. 2, no. 1, which included the *Brongniartia* paper, was published 1 Oct 1833. Nothing else was published in that volume until 1852.

4. For Bigsby's splendid plate (drawn [and probably engraved] by Charles-Alexandre Lesueur [1778–1846] — and much superior to the reproduction in Eights's Plate 2, Fig. 8), see Pl. XXIII, accompanying "Description of a new species of trilobite," by John Jeremiah Bigsby (1792–1881), *Journal of the Academy of Natural Sciences of Philadelphia*, first series, 4(2), 1825. Eights guessed astutely in assuming that most trilobites had eyes.

5. The original manuscript is in McKinney Library, AIHA (DH 566 / L/1/4). Albany Institute, *Transactions*, 2: 354 (I have put in square brackets one word in the manuscript that was printed differently). The Rev. William Buckland's popular Bridgewater Treatise, *Geology and Mineralogy Considered with Reference to Natural Theology*, treated similarities of certain isopod Crustacea to trilobites; see volume II, Plate 4, Figs. 6, 7; plate caption is pp. 71–72. William Elford Leach (1790–1836), in *Dictionnaire des Sciences Naturelles*, article on the "Cymothoadae," 12: 340, made an older species, *Cymothoa paradoxa*, into *Serolis fabricii*, the type species of a new genus. I thank Ellen Fallon, N.Y. Botanical Garden Library for providing a photocopy of this elusive work. See J.W. Hedgpeth, "James Eights of the Antarctic," p. 43.

6. Anon., 1835 (editorial notice), p. 395. While it is hardly likely that Silliman's copy of the Albany Institute

Transactions remained forever lost, it was not until 1856 that that influential periodical rectified the lapse by reprinting most of the natural history notes of the *Brongniartia* article at the end of Eights's paper on *Glyptonotus*. Scientific fame in his own land came hard to James Eights.

7. James Eights, "Sur le Brongniartia," *Bulletin Scientifique. Zoologie, L'Institut* (etc.), 3, no. 105, pp. 158–160. The title of Eights's paper is cited on p. 147. The natural history part of Eights's paper fared better than the taxonomic part and ought to have made his name recognizable to interested readers of the period. It appeared in late April (or very early May) in the *Merchantile Advertiser and New-York Advocate* (not available to me), from which it was reprinted as "The South Exploring Expedition," in *Niles' Weekly Register*, 3 May; P.L.A. Cordier, "Expeditions scientifiques: Voyage au Pôle Austral. Géologie," 1837, cited it briefly; Edmund Fanning used it as a chapter in the second edition of his *Voyages*, as "A description of the New South Shetland Isles, by James Eights, Esq., M.D., naturalist in the scientific corps in the American exploring expedition," pp. 195–216, 1838; and, finally, most of it was used as an appendix to a reprinting of JE's later crustacean, *Glyptonotus*, 1856.

8. CSR to Torrey, 6 Mar 1831; letter in Medical Center Library, Duke University.

9. Jacob Green to T. Romeyn Beck, June 1832; T.R. Beck Papers, the New York Public Library; the envelope seems to bear the postmark date of 19 June. See next paragraph and Note 10.

10. J. Green, *A Monograph of the Trilobites of North America*, 1832, pp. 14–15, 92–93. He had consulted the cabinet of James Eights in his study of trilobites (p. 26); there is a further reference to Eights in Green's unfinished *A Supplement to the Monograph of the Trilobites of North America*, 1835, p. vii. He and T.R. Beck were particularly close friends (*Monograph*, pp. 87–88). Jacob Green (1790–1841) was very active in the SPUA (that ultimately formed part of the Albany Institute) from about 1812 to 1816. He is variously noticed in biobibliographies of American naturalists; a good account of his Albany years is to be found in the Joseph Henry *Papers*, I: 322–323, note 1.

11. Amos Eaton, "Trilobites," 1832, p. 166.

12. Eaton, *Geological Text-Book*, 2nd ed., pp. 30, 32, 33.

13. Frank Evers Beddard, "The Genus *Serolis*," p. 2, sufficiently accounts for the trilobite-isopod viewpoints of Audouin, Milne Edwards (or Milne-Edwards) and Walcott. See C.D. Walcott, "The trilobite."

14. Louis Agassiz, "The Hassler expedition"; the editorial notice is on p. 4, the letter, a prominent, full column, is on p. 5. Louis Agassiz (1807–1873) was professor of zoology at Harvard from 1848 until his death. "Prof. Peirce" was Benjamin Peirce (1809–1880), Harvard professor and greatest American mathematician of his day; a devoted friend of Agassiz.

15. Sidney Irving Smith, "The Hassler Expedition"; for Smith (1843–1926), associated with Yale University's Peabody Museum, in charge of Crustacea 1867–1906 (when forced to retire because of blindness), see A.E. Verrill, "Sidney Irving Smith."

16. Robert Parr Whitfield (1822–1910), Albany Institute *Proceedings*, I: 322, meeting of 7 May 1872 (manuscript account of meeting does not differ); he was an assistant in paleontology at the New York State Geological Survey,

1871-1875. For Whitfield, see Roger L. Batten, "Robert Parr Whitfield: Hall's assistant who stayed too long"; it is probable that by this time he and Hall were not on very good terms. What was not said was that this was the quintessential Agassiz: the master of absorbing (and making his own) the work of others, capable even of accusing those workers of plagiarism of his work, if they asserted ownership. Said the evolutionist Ernst Haeckel in 1875: "Louis Agassiz principally owed his exceptional and wholly predominant situation among American naturalists, not to the scientific value of his own work, but to the marvelous talent he had for appropriating to himself the work of others." Haeckel did not mean to be misunderstood; he summed up his characterization: "Louis Agassiz was the most ingenious and most active swindler who ever worked in the field of natural history" (quoted in Mary P. Winsor's translation, *Reading the Shape of Nature, Comparative Zoology at the Agassiz Museum*, p. 54).

17. Jean Victor Audouin and Henri Milne Edwards, "Description des crustacés nouveaux ou peu connus"; "Sur le genre *Sérole*," pp. 8-9; a long, detailed description of the genus follows, with full reference to Eights's work, pp. 14-22; Eights's *Sérolis trilobitoides* is described pp. 29-30; Plate II, Fig. 11, shows an example of Eights's animal, natural size, copied from the 1833 plate; the caption for Plate II is on pp. 33-34. There is a good discussion of the history of the genus, with comments on similarity to trilobites.

18. T. Studer (1845-1922), "Beiträge zur Kenntniss niederer Thiere von Kerguelensland," p. 21, good illustrations, Plate III; "Die Fauna von Kerguelensland," pp. 136, 138; in no case did he ever spell Eights's name correctly.

19. F.E. Beddard, "The genus *Serolis*," pp. 2-3, 5, 7, 50, Plate I, with caption.

20. Georg Pfeffer, "Die Krebse von Süd-Georgien," p. 17; there are comments on zoogeography of the genus, p. 19.

21. E.M. Sheppard, "Isopod Crustacea — Part I. The Family Serolidæ," pp. 323, 326-328, excellent illustration Plate XIV, Fig. 7.

22. E. Emmons, *Natural History of New York*, vol. 4, Geology, pt. 2; the figure, apparently engraved on wood by E. Emmons, Jr. (see p. 7), is on p. 390; reference to its resting form, p. 391; the list of "fossils" and Eights's diagnosis, pp. 433-434. W.T. Calman, "James Eights, a pioneer Antarctic naturalist," p. 178, points out this work was not so much ignored as simply published where no one would think of looking for it. The only early reference to it that I have found is Ledyard Lincklaen, "Guide to the geology of New York, and to the State Geological Cabinet," p. 6, Plate III, Fig. 10 (where it is correctly called "a living crustacean from the South seas, somewhat resembling the

trilobites"). Amos Eaton, *Geological Text-Book*, 2nd ed., p. 129, refers to this Eights form, then unnamed, as similar to a fossil trilobite when contracted.

23. W.E. Leach, *Dictionnaire des Sciences Naturelles*, vol. XII, p. 346, 1818; Thomas Roscoe Rede Stebbing (1835-1926), "On some crustaceans from the Falkland Islands collected by Mr. Rupert Vallentin," *Exosphaeroma*, new genus, p. 553; Plate XXXIX.

24. JE, "Description of...*Glyptonotus*," *AI Transactions*, 2: 331-334, 2 plates. This paper holds an honorable place in the annals of Albany Institute, having been presented less than a year after the reorganizational meeting of 6 Mar 1851 — the first reported meeting since 14 Apr 1843. Eights's paper was given on 5 Feb 1852, apparently by himself; the Minutes say simply: "Doct. Eights presented a description of a specimen [species] of *glyptonotus*, accompanied by drawings." There was no comment from the floor and if there was the ordinary courtesy of moving thanks to the speaker, the secretary failed to record it (*AI Minutes*). The plates do not reflect the usual practice of indicating artist and preparator of the plate; it is to be assumed that the plates are accounted for by the motion presented on 1 Jun 1852 (*AI Minutes*) when "it was resolved that the two papers heretofore presented by Dr. Eights [the other was his "Observations on the geological features of the post-tertiary formation of the City of Albany"]...form a part of the 2nd Volume of the Transactions and that the same be printed and the Volume prepared for distribution, provided the printing & engraving of the plates accompanying Dr. Eights' paper on the post tertiary formation &c. can be procured [?] to be executed gratuitously, it having been intimated that Mr. Van Benthuyzen had liberally offered to do the printing and Mr. Gavit having offered to do the engraving without charge to the Institute." Evidently, plates for *Glyptonotus* were included in the "&c."; we find James Dwight Dana (see Note 28) thanking "Mr. J.E. Gavit" (but not James Eights!) for use of the "two fine plates."

25. JE (actually by J.D. Dana, editor), "A new genus and species of Crustacea, by James Eights." This notice was copied in full (without credit) in *Annals and Magazine of Natural History*, 1853.

26. JE, "Description of an isopod crustacean from the Antarctic Seas, with observations on the New South Shetlands; by James Eights. — With two plates" (1856). While Dana may be thought a trifle cold toward Eights, his gratitude to Gavit was real: It saved him the cost of having them copied locally.

27. G. Pfeffer, "Die Krebse von Süd-Georgien nach der Ausbeute der Deutschen Station 1882-83," pp. 19, 21, 75-85, Plates II, Fig. 7 [No! — *Glyptonotus* is shown in dorsal view, without legs, in Fig. 1], VI, Figs. 13-27.

WHO WANTED TO SEE A TEN-LEGGED SEA-SPIDER? JAMES EIGHTS'S STRANGE PYCNOGONID, *DECOLOPODA AUSTRALIS*

Dr. W.T. Calman tells the story well. When Captain Robert Falcon Scott's first Antarctic expedition called at New Zealand in April 1904, among tidbits released to eager newspapermen ("in an obscure corner of one of the telegrams") was the news that T.V. Hodgson, naturalist on the ship *Discovery*, had found a ten-legged sea-spider. Was it journalists' hyperbole: their "infinite capacity for distorting anything that is said...on scientific matters"? Remarked Professor D'Arcy Wentworth Thompson thoughtfully, "'I wonder if he has found *Decolopoda*?'"¹

Decolopoda was James Eights's name for a ten-legged pycnogonid or sea-spider, imparted in 1835 to a world that knew for a fact all sea-spiders had eight legs. But Hodgson's discovery was a ten-legged form entirely different from that described by Eights. It was not until W.S. Bruce's collections made in the ship *Scotia* were examined a few months later that a veritable example of Eights's own *Decolopoda* forced itself into the spotlight — some 70 years after Eights had announced his discovery, only to be met by silence, revisionism, and innuendo. Slow as the world was to acknowledge Eights's discovery, with the new century in place, his odd pycnogonid was a major factor in his elevation to a place of scientific renown.

It began in a characteristically unhurried way with James Eights's letter, dated 9 August

1834, to Dr. Amos Binney, editor of the *Journal of the Boston Museum of Natural History*. He had recently visited in New York City with Jeremiah Reynolds and was pleased that Reynolds had determined to send his collections to the Boston museum. "As evidence of it, I have prepared for publication in your journal, the description of a new & very curious animal, that evidently occupies the situation between Cuvier's two great classes in the Animal Kingdom, *Crustacea* & *Arachnoides*, possessing essential characters of both....The description is accompanied by a drawing, representing the animal & I only regret that the want of a convenient opportunity alone prevents me from forwarding it immediately."²

Eights's paper is printed here.

Description of a new animal belonging to the Arachnides of Latreille; discovered in the sea along the shores of the New South Shetland Islands. By James Eights, M.D. (Communicated September 17, 1834.)

ARACHNIDES. / Gen. *Decolopoda** [foot-note: From {the Greek for} "...ten...perfect...feet."].

Thorax. Elliptical, composed of five segments, separated from each other by slightly impressed articulations; anterior one produced into a head-like process. Contracted behind,

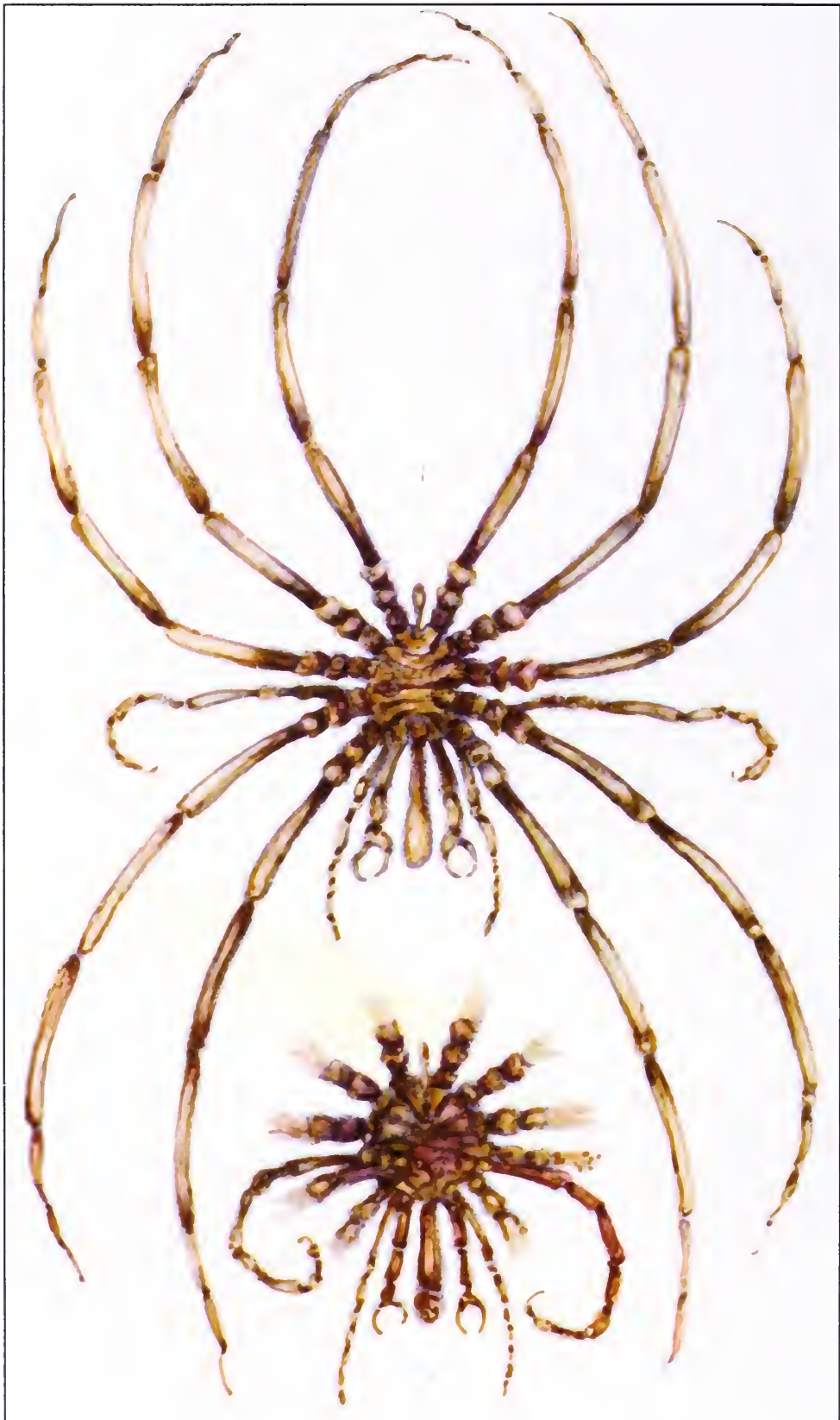


Figure 11.1. *Decolopoda australis*, a ten-legged pycnogonid (sea spider) that ultimately catapulted James Eights to fame. Original drawing unknown. This illustration, published in the *Boston Natural History Society Journal*, was photographed from an unevenly faded colored copy by Carl J. George. Jennifer G. Fais supplied color.

and having on its superior surface a subconic tubercle with two eyes placed on each side; segments terminated at each extremity by a tubular joint, to which are attached ten perfect legs.

Rostrum longer than the thorax, tubular, clavate, arcuated downward, with a triangular aperture at its apex; inserted into the anterior portion of the head-like process below. *Chelicerae* rather longer than the rostrum, inserted on each side of its base, above, biarticulate, and terminated by a forceps composed of a finger and thumb, much curved, and meeting only a short distance along their tips, the superior finger, alone movable. *Palpi* setaceous, ten jointed, longer than the rostrum, inserted beneath the chelicerae. *Egg-bearing organs* attached to a process at the base of the palpi, ten-jointed, with a terminal incurved nail. *Legs* cylindrical, composed of a three jointed coxa, one jointed femur, and a two jointed tibia and tarsus, the latter terminated by a simple, slightly curved claw. *Abdomen?* attached to the posterior segment of the thorax by a movable articulation, small, sub-clavate, and perforated at its extremity by an anal incision.

D. Australis.

Entire animal of a bright scarlet; disk of the thorax convex, beneath, slightly so; on the superior surface of the tubular joints, near the margin, are situated about four very small, rigid spines; basal joint of the chelicerae, elongated. *Palpi* with the third and fifth joints elongate, the former of greater length than the latter. *Egg-bearing organs* with the three first joints small and sub-equal, fourth and sixth elongate, the remainder nearly equal: the four terminal joints are prehensile, and have their inner margins dentated, the teeth arranged in about four longitudinal rows. *Legs* bony and nearly equal, posterior pair rather smaller; joints of the coxae short and subequal. *Thighs* about twice the length of the coxae, furnished with small spines at their superior extremity. The first joint of the tibia equal in length to the thigh; the last joint of the tibia, and those of the tarsi, each armed at their extremities beneath, with four rigid spines. *Eyes* very small. *Teguments* pergamineous.

Habitat: sea in the vicinity of the New South-Shetland Islands.

Cabinet of James Eights.

I have placed this interesting animal in the class ARACHNIDES, in consequence of its close approximation to Latreille's second family *Pycnogonoides* [footnote: Cuvier, Regne Animal.], of his order Tracheariae; it possesses all of the characters, besides which, it has a segment supporting two additional legs, making in all *five perfect pairs*; this latter circumstance would doubtless bring it in the preceding class CRUSTACEA, being a character which strikingly distinguishes the animals that compose it; at all events, I think it will certainly form a connecting link in the great chain of the animal kingdom, between these two classes, passing from the CRUSTACEA into the ARACHNIDES by the genera Nymphon, Phoxichili, Pycnogonum, &c. Their mode of respiration I could not determine, as no appearance of stigmata, through which they are supposed to breathe, were visible. Of the many specimens that I obtained, I saw none but such as were furnished with what are termed the egg-bearing organs, consequently, if those are the females that are thus distinguished, they prove much more numerous than the males.

The tegument covering the body is soft and yielding, the appearance of the segments and articulations are necessarily faint, indicating that little motion of the parts is required.

They are to be found in considerable numbers in connexion with the fuci, thrown up by the waves along the shores of the islands, after being detached by the motion of the large masses of ice, from the bottom of the sea.

Plate VII.

Fig. 1. Superior view of the animal, natural size.

" 2. Inferior " " "

deprived of the legs near the coxae.³

Before we undertake a tour of taxonomic zoology to see how Eights's discovery fared, it may be well to note a parallel case, in order to appreciate that the work of collectors, no matter how carefully documented, is frequently overlooked, dismissed or thoughtlessly destroyed.

Captain James Clark Ross, of the *Erebus* and *Terror* Antarctic Expedition of 1839, aided by Dr. Joseph Dalton Hooker (whose fame as botanist has been noted), studiously collected marine invertebrates. That among them there was probably a ten-legged pycnogonid is shown by one of Hooker's surviving drawings in the British Museum (Natural History).⁴

Remarkable as it was, Eights's discovery waited long for confirmation. It was slightly referred to by John O. Westwood in 1840 — "A still more extraordinary genus, with ten legs," whose perfectly good name he promptly respelled as "Decalopoda," intimating that Eights was incompetent to coin a Greek word.⁵

P.P.C. Hoek in 1881 knew of *Decolopoda* only from Westwood. He copied the latter's amended spelling: "I have not been able to ascertain whether this is a good genus, nor where it has been found."⁶

In 1902, the Rev. T.R.R. Stebbing, noted authority on the Crustacea, wrote a lighthearted account of pycnogonids, which he termed "the nobodies": they had, "comparatively speaking, no bodies." And, he noted, they had "no flaunting reputation," although with names "they have been abundantly blessed," more than 40 genera having been established, "some of them so obscurely that now and then a desperate author pounds up eight or nine into one. Then again [— perhaps presciently!] the counsels of despair have to be modified, and some of the rejected names resume their place in the system." As to their enemies, they seem to have few and make little effort to escape or fight, there being "no satisfactory nutriment in their long branching tubes of chitinous, or as Eights calls it 'pergamineous' integument. They won't fatten." Stebbing goes on: "Nevertheless, like other animals, they have obeyed some stimulus impelling them to vary." After that notable achievement in making a dull subject fun, Stebbing stumbled in regard to Eights's *Decolopoda* (which he astutely spelled right), evidently thinking that Eights had made out his species to have the "second pair of appendages...ten-jointed." It required, he thought, either a new family or a widening of the definition of a previous one. As Stebbing

characterized Eights's species (incorrectly), "Its chelifori are large with much curved thumb and finger. Of...specimens obtained all were provided with ovigerous limbs, eleven-jointed, so that Eights counted these in with the four following pairs of legs, and framed a generic name which signifies that...there are 'ten perfect feet.'" Perhaps, as Calman suggests, Stebbing was writing from memory.⁷

The new century thus got off to a discouraging start. And in 1905, "the very year in which Hodgson re-discovered the species," J.C.C. Loman called it "ein irrationelles Monstrum," implying that Eights had an individual monster as his example — or that he had made a mistake in counting legs. In the same year, E.-L. Bouvier actually handled another species of *Decolopoda* but described it as a species of *Colossendeis* — without mentioning the number of legs! He wrote later that he had regarded it an anomaly without great value.⁸

Thus did the zoological world cling to its belief that all normal pycnogonids had eight legs. But 1905 was the year of revision. Not only was Eights's long-ignored discovery brought to light and exemplified but a rediscovery of the man himself was initiated. The initial break came from T.V. Hodgson, biologist to the National Antarctic Expedition: the discovery of a ten-legged pycnogonid. That was followed by a one-two punch when Hodgson summarized findings of both his own and W.S. Bruce's new pycnogonids from the contemporary Scottish National Expedition on the *Scotia* — the latter including veritable specimens of Eights's animal. He followed that by a full acknowledgment of Eights's discovery of three quarters of a century earlier and a sharp correction to Loman.⁹

An additional episode of that eventful era fits neatly into what has been reviewed in the previous paragraph. I have left it last, in this series of taxonomic coups, for it concerns not merely a zoological taxon but soon led to significant expansions in the world's knowledge of James Eights, the man who started the argument many years before.

In fact, its initial volley antedated two of T.V. Hodgson's papers just referred to. On 12

January 1905, Leon J. Cole of Harvard University deposited a substantial manuscript with editors of the *Annals and Magazine of Natural History*, which had just brought out Hodgson's initial paper of December 1904. In it, Cole pointed out that, far from Hodgson's being the first ten-legged pycnogonid ("a character which separates it from all Pycnogonids hitherto known"), there had been another: *Decolopoda australis* of Eights, 1837 (he used the date of the finished volume) — "a fact which seems never to have come to the attention of workers on the group since that time." Cole promptly corresponded with Hodgson; Cole had already tried to find out something about James Eights.¹⁰

Just whom Cole tried to reach in regard to James Eights in 1904 I cannot say (I have been unable to find his correspondence for that era), but in 1905, he hit pay-dirt. The initial response must have disappointed him.

On 20 March 1905, John Mason Clarke, director of the New York State Museum, and long its paleontologist, replied to a letter from Cole dated 18 March. In it, Clarke told what he knew (not much) and what he had been able hastily to find out (neither much nor very reliable). Details of this rediscovery of James Eights will be found in a later chapter in its historical sequence.¹¹ Clarke lost no time in learning more about Eights and in 1916 published what for many years remained the best account of his life.

These technical chapters on southern and Antarctic biology have taken us out of historical sequence. We now return to a decade-by-decade enquiry into the life of James Eights.

NOTES

1. W.T. Calman, "James Eights, a pioneer Antarctic naturalist," p. 171. For a zoogeographic account of sea-spiders, see J.W. Hedgpeth, "Introduction to Antarctic zoogeography" and "Pycnogonida," Antarctic Map Folio Series, Folio 11, pp. 1-9, 26-28, also maps, Plates 13, 14.

2. The letter, then in the Library of the Boston Society of Natural History, was quoted by Calman, "James Eights," p. 181. I quote from the letter by permission of the Museum of Comparative Zoology Archives, Harvard University, a photocopy having been kindly provided by Robert Young, Special Collections Librarian. That Eights

was not long in delivering the paper and the illustration is shown by the fact that the paper, Article 11 in Part 2 of Volume 1 that appeared in May 1835, was said to have been "Communicated September 17, 1834." Evidently, Eights also sent a male specimen, for it presumably found its way from the defunct museum of the Boston Society of Natural History to Harvard's Museum of Comparative Zoology, where it is Neoholotype No. 12271. See J.W. Hedgpeth, "On the evolutionary significance of the Pycnogonida," pp. 9-10, note 2. Ardis B. Johnston, Curatorial Associate, Invertebrates, Museum of Comparative Zoology (letter 3 Mar 1992) confirms the presence of Eights's No. 12271 — their only invertebrate specimen collected by James Eights. Unfortunately, Eights's original drawing, if kept by Binney, cannot be found. While a considerable volume of original artwork belonging to the old Museum of Natural History was retained by the Boston Museum of Science, a thorough search of both listed and uncatalogued drawings there, kindly made by Carolyn Kirdahy, Librarian/Archivist (letter 23 Apr 1992), shows no evidence of it. Binney's color plate was aquatinted by G.G. Smith. For a review of pycnogonid anatomy and physiology, see P.E. King, *Pycnogonids*. Existing colored plates accompanying Eights's article are usually irregularly oxidized. In my illustration, I have used a photograph kindly supplied by Carl J. George and its original coloration has been restored by Jennifer G. Fais, both of whom have my best thanks.

3. James Eights, "Description of a new animal...," May 1835 (the date of 1837 comes from the title page of the finished volume).

4. J. Davenport and G.E. Fogg, "The invertebrate collections of the 'Erebus' and 'Terror' Antarctic expedition: a missed opportunity," p. 325.

5. J.O. Westwood, "The second family of the trachean Arachnida, — the Pycnogonides," p. 468.

6. Paulus Peronius Cato Hoek (1851-1914), "Report on the Pycnogonida," p. 6.

7. T.R.R. Stebbing, "The Nobodies, — a sea-faring family," pp. 186, 189. Calman, "James Eights," p. 180.

8. Calman, "James Eights," p. 180; Jan Cornelis Christiaan Loman, in "*Decolopoda* Eights oder *Colossendeis* Jarz.," p. 723, prided himself on keeping the realm of nomenclature free of errors; Eugène Louis Bouvier (1856-1944), "Observations préliminaires sur les Pycnogonides recueillis dans la région antarctique par la mission du 'François,'" p. 295, his *Colossendeis antarctica* nov. sp.; Bouvier was quick to admit his error, faulting Loman as he did so, in "Nouvelles observations sur les pycnogonides recueillis dans les régions antarctiques au cours de la campagne dirigée par M. Jean Charcot," pp. 16-19. As Hedgpeth wrote, "James Eights of the Antarctic," p. 43, Eights's species "is not a rare anomaly; every season several specimens are collected somewhere in the Antarctic and it ranges from South Georgia through the Ross Sea to Heard Island." What would zoologists of the turn of the century have thought had they been told of a twelve-legged pycnogonid? Just such a creature — and, again, no monster — was described by W.T. Calman and Isabella Gordon in 1933 in "A dodecapodous pycnogonid," p. 107: yet another genus added to the Pycnogonida!

9. Thomas Vere Hodgson (1864-1926), (1) "On a new pycnogonid from the south polar regions" (*Pentanymphe*), (Dec 1904), in which *P. antarcticum* was

hastily announced; (2) in "On *Decalopoda* [!] *australis*, Eights — an old pycnogonid rediscovered," Hodgson quoted verbatim Eights's original description and added his own diagnosis, pp. 36-41, with extremely handsome illustrations on plates II and III; and (3) in the periodical that had carried Loman's paper, Hodgson summarized his findings in "Decalopoda and Colossendeis" and, except for his misspelling of Eights's generic name, put all to rights in regard to doubts planted by Loman: noting, p. 254, that "Eights's description is remarkably accurate and the figure is little, if any, worse than many produced at the present day. As he made it clear that he obtained a number of specimens it is out of the question to consider the species as a monstrosity"; Hodgson, pp. 255-256, recharacterized the genera "*Decolopoda*" Eights and *Colossendeis* Jarzynsky, having restudied the latter genus.

10. Leon Jacob Cole (1877-1948), "Ten-legged pycnogonids, with remarks on the classification of the Pycnogonida," p. 405: "Eights gives a very good description and illustration of the species — much better than the

average at that early date." Cole had attempted in vain to find out more about Eights, p. 406. Even though he had the assistance of the curator at the Boston Society of Natural History, he was unable to find the specimen. One final comment may be pertinent: All this occurred in the Bad Old Days, before interplanetary rocketry, supersonic transports, radio communication, the information highway, or even xerocopy. Hodgson's paper was deposited with the *Annals & Magazine of Natural History* in time to appear in its December 1904 issue; Cole's paper, with its comments on the December paper, was received by the editor 12 Jan 1905; Cole had already corresponded with Hodgson; Hodgson's paper, that included new information from the Scottish National Antarctic Expedition and a reference to *Decalopoda* (!), was received at the Royal Physical Society of Edinburgh 17 Jan and read on 23 Jan 1905.

11. These letters of John Mason Clarke (1857-1925) are in N.Y. State Archives, BO 561. Box 11; Cole's letters to Clarke have not been retained.

EIGHTS IN ALBANY: THE ZODIAC YEARS, 1830–1836 — I: “THE NATURALIST’S EVERY DAY BOOK”

The year 1830 witnessed the hurried return of James Eights from his southern and Antarctic voyage. The following decade saw most of the somewhat ambiguous disposition that was made of plant and animal specimens he brought back.

The decade was a notably busy period for Eights. Important visitors came to his doorstep. He kept up with old friends. He made a few efforts to record his Antarctic observations. He immediately renewed his activities in the Albany Institute. He wrote copiously, published often, traveled widely within the compass of his now diminished universe, and clearly showed promise of going onto bigger, more solid things. His only known engagement in local political maneuvering occurred. He was briefly associated with the prestigious New York State Natural History Survey, but left it. His efforts to gain a position with the great national South Sea Exploring Expedition loom large in the final years of the decade.

The story is a little unfocused. James Eights emerges as a busy field naturalist for whose mill all Creation was grist. He ought to have worked more assiduously on his Antarctic specimens. He ought to have realized that the way of the world was by then with the narrower specialties, however much it needed (as always) someone to train the popular imagination on a coherent and informed vision of the whole. His efforts at the latter task went by fits and starts, as he jauntily wore by turns the hat of one or another of his fancies. His speaking acquaint-

tance with vertebrates and botany never deepened. Perhaps he found insects and other invertebrates more to his liking. Even his early love for geology, as a sustained passion, soon foundered.

The decade saw the playing out of minor projects and ended in the bitterness of failure. There is material for two long chapters in Eights’s first half dozen years of the 1830s, ending as they do in a crescendo of activities centered on *The Zodiac*.

LIFE AT THE INSTITUTE

We know about the purchase of Eights’s Antarctic collections by the Albany Institute, the presentation of his early paper on one of his new species and its appended general account of South Shetlands natural history.

James Eights gave books to the Institute library and specimens to its museum, many not further identified as to number or content. Even though he was not officially a curator, on 8 January 1834, he served with Richard V. DeWitt and Peter Bullions on a committee to provide the Institute with an annual curatorial report. His name was commonly among donors in the regular reports on Institute activities in the Albany *Argus*.¹

In the “Catalogue of Properties” of the Institute, a somewhat fuller detail of donations was usually kept. On 10 April 1830, even though not returned from the Antarctic, he was credited with a 1666 book in Dutch, perhaps

given in his name by his father. In March 1831, he contributed a medal and an East India copper coin. He gave books in 1831 and 1832; copper coins from Upper Canada (1820), England (1774), and Connecticut (1787). On 28 April 1832, James Stevenson donated Eights's "Gourd containing Cayenne Pepper" from Valparaíso; in June, there was a plaster medallion of DeWitt Clinton and a cast of a trilobite fossil (probably given to him by Jacob Green, then attempting to catalogue American trilobites, followed by several copper coins in October and November. On 9 January 1833, Eights contributed a specimen of *Salamandra tigrina* from the Erie Canal. This was the first known example of *Ambystoma tigrinum* in Albany, an area no longer within its range. It was obviously Eights's salamander phase (one wonders when he acquired the specimens — surely not in January, unless they were found hibernating), for the same day, he presented a specimen of *Salamandra fusca*, now called *Desmognathus fuscus*, a much more widespread species, although his was the first record from Albany. Among other 1833 donations: arm of a human foetus; the African locust blown on board the *Annawan* (already noticed); sample of Tertiary Rock, from the "Islands of St Mary, coast of Chili"; a *Hirudo* (leech) from Africa and 10 European trilobites.²

In 1834, the Albany Institute was enriched by various books and specimens due, in one way or another, to Eights. In May, shells from Hugh Cuming sent in exchange, as well as the list of names for Eights's mollusks provided by Cuming (see chapter on mollusks); a plaster medallion of Berzelius, "copied from a foreign one in Iron"; specimens of *Limulus*, the horseshoe crab, from Long Island; five kinds of seeds — not further identified — from the West Indies; certain library volumes were acquired in exchange "for Sundry Duplicate Shells & Rocks in Eights's Collection." In December, Eights donated a copper medal, awarded for Woodworth's Patent Planing Machine, together with a sample "Plank planed by W.P. Haskins, Troy."³

In 1835, a medal was contributed by "Dr J. Eights" (possibly Jonathan, for in the "Catalogue" James was usually either "James"

or "Jas"); James contributed vertebrae of a fish from the Lias of Germany, specimens of *Libinia canaliculata*, "with their external pedipalps," from the bays and inlets of New York, and other fossils and rocks.⁴

On 1 November 1831, Eights sent a short letter on "Habits of the ruffed grouse, or pheasant" for use in the first volume of the *Cabinet of Natural History*, edited by John and Thomas Doughty of Philadelphia. He noted the "stupidity" of that bird, a supplement to a somewhat similar notice in a previous issue of the *Cabinet* by Jacob Green. It was perhaps on account of this letter that James Eights was promised by the editors as a future contributor to the magazine. Eights served 1831–1832 through 1835–1836 as "Hospital Surgeon" in Albany's military establishment (similar to today's National Guard), in the Third Brigade Horse Artillery (see an earlier chapter with reference to his title of doctor for details).⁵

Thus, the world enlarged to include James Eights. Constantine Samuel Rafinesque, a naturalist whom he had met on the return from Niagara Falls in 1826, renewed his acquaintance, anxious to see Eights's so-called living trilobite, the crustacean *Brongniartia*. Rafinesque, having arrived in Troy (Lansingburgh) on the "Troy towboat Barges," on 29 July 1833, soon met up with Lewis Beck and James Eights; he was a house guest of the Eights family on 1 August 1833, where, as he recorded in his *A Life of Travels*, "Dr. Eights showed me his 2 N.G. [new genera] of Crustacea from the Austral seas, for which I suggested the names of *Lomops* and *Decatelopus*, but could not approve of his name of *Brongniartia* for a living austral trilobite, as this name is employed and disputed. *Trilobalis* would have been better." On Rafinesque's return to Pennsylvania by an inland route, Eights accompanied him as far as Clarksville on 10 and 11 August, introducing Rafinesque to his favorite geologizing sites in the Helderbergs. They traveled the first part of the journey by lime cart. On 12 August, Eights left him and he continued alone — walking, the better to study the geology of the countryside on his way to Middleburg, the inland leg of "a kind of scien-

tific pilgrimage long ago contemplated to the sources of the rivers Delaware and Susquehanna.”⁶

In all this, there is not much continuity. There is the occasional notice of him in the correspondence of Joseph Henry, who had gone on from his formative days in Albany to the university at Princeton (and would ultimately put the Smithsonian Institution on the map as a world-famous center of exchange of scientific information). On 27 October 1834, he wrote to his brother James Henry in Albany: “Give my thanks to James Eights for the Medallion in Plaster of the Swedish chemist Berzelius.”⁷

The year 1834 also gives us one of the rare hints that Eights was now and then a man of his time. There was a wonderful outburst from Edwin Croswell, the staunchly Jacksonian editor of the *Argus*, on 6 May 1834. An important election occurred that very day and, the night before, there was formed “a committee of vigilance to promote the election of the republican candidates in this ward.” Editorial efforts consisted of some bombast and the nearly endless listing of some 400 names, including Croswell and James Eights, making up that “committee.” It is obvious that the committee far outnumbered the voter turnout (or, who knows, perhaps even the total number of potential Jackson voters in the ward?). The candidates of the “republican” ticket (that is, the Jackson-Van Buren, now called Democratic, party) lost both in the Second Ward and city wide. In the Second Ward, for all its Committee of Vigilance of some 400 alert and concerned partisans, the highest number of Republican votes for any of the five candidates was but 202!⁸

And from the Henry correspondence: Albany resident Philip Ten Eyck wrote 7 Dec 1835, sharing scientific interests and local news: “Jim Eights has just returned from the Pennsylvania coal mines and threatens to blow up Silliman & the fellow who filled up his last journal.”⁹

JAMES EIGHTS AND THE ZODIAC

For a brief period in the mid-1830s, *The Zodiac*, a monthly periodical “devoted to sci-

ence, literature and the arts,” was published in Albany. It has for us the special significance that for a time it provided James Eights with nearly unlimited (mostly anonymous) exposure to the public. Nothing of Eights’s connections with the magazine or its editors is known. It may not be amiss to notice that the name associated with editing and publishing the magazine for the entire period when Eights’s works were appearing regularly was Erastus Perry and that, when he was gradually edged from the scene, works by Eights also disappeared from the pages of *The Zodiac*. Maybe, on the other hand, Eights had simply run his course for that period.¹⁰

The departure of Erastus Perry must have been a choice piece of gossip in Albany. In the September 1836 issue, we find the discreet “Notice”: “In consequence of the extraordinary conduct of Mr. Perry, who has withdrawn himself from all charge or management of this paper, with which he declares he has nothing to do, while he still retains the subscription book, and attempts to collect as well the amounts due for the last as the current volume, I have been compelled to assume the sole management of it.” The notice is signed H.L.V. Ducoudray-Holstein, a colorful emigré Frenchman, probably among the “number of literary gentlemen” who assisted Perry from the first, although only listed by name as joint proprietor (with his name first) with the first number of volume 2, July 1836, when M. Henry Webster was named as editor (there having previously been no specifically named editor). With the September issue, Ducoudray-Holstein became the only proprietor, Webster the editor, as both continued to be through the final page of the seventh number of *The Zodiac* for January 1837 — after which all is silence.¹¹

In all this, James Eights was a shadowy figure. Of some 15 articles definitely by him, only one carried his name within the magazine: his unfinished “A synopsis of the rocks of the State of New-York,” signed “James Eights, M.D.” Still, in the index to volume 1, provided by the original publisher, he was given as author of articles entitled “The naturalist’s every day book” (six), “Notes of a pedestrian” (five), and one on “Entomology” (signed “E.”). In his two

final installments of the "Pedestrian," in volume 2, he was also not named but attribution of the articles to him is clearly correct. However, he certainly was not, as recently claimed, the author of a series of urbane articles in volume 2 describing a tour in France and Scotland.¹²

There was, of course, a certain coyness about naming names in literary periodicals of the time. In *The Zodiac*, 1(4), October 1835, p. 63, we read: "We continue the Naturalist's every day book, knowing that the series commends itself to every lover of nature and of science. We are confident that there is not in the United States, any one better qualified to make the observations recorded there, than the person from whom we receive them." Brave — faceless — words. Did the editor hope the articles would thus be credited to a more eminent writer? Was Eights paid and, thus, not entitled to a by-line? In any case, that was the last installment but one of the "Every day book," and that last appearing number was actually chronologically the first of the series. Eights simply did not have anything written at the moment, being then on his trip to the Pennsylvania coal mines, as described in his later series, "Notes of a pedestrian." He was temporarily replaced by four installments of "The study of natural history," identified only within an introductory paragraph (not in the index) as being by the English naturalist William Swainson.¹³

THE ZODIAC: "THE NATURALIST'S EVERY DAY BOOK"

The day-by-day march of events at critical times of the year has always inspired naturalists to record their findings. The comparative study of the march of seasonal events has a scientific name — phenology.¹⁴

For his part, James Eights put Albany on the map phenologically with a series of articles on the parade of events in the spring and summer of 1835. They number altogether six with the July segment divided editorially into two installments and, unhappily, what Eights meant to be the introductory essay for May, to begin

the series, not published until last. Clearly, the sequence is May through September. It was the year 1835 (the days of the week match the expected calendar for that year); Eights began it and ended it as a record of what he conceived the growing season of that year. That nature has its winter aspects, Eights no doubt recognized. It is unfortunate that we do not have from him a continuous record of a full calendar year.

Anyone wishing to examine the record in full can read Don Rittner's facsimile edition of *The Zodiac*. Here, I treat Eights's five months (six installments) in phenological order, starting with May, the last published. I have elected here to reduce notice to a summary of what I conceive as lasting in Eights's observations. There will be quotations where called for; there will be critical evaluations when such are due.

In March 1836, *The Zodiac* carried, as its lead article, Eights's account of the month of May 1835: "at the request of several scientific gentlemen, who wish to compare the events in the natural history of the coming month of May with those of the preceding year."¹⁵

May, Eights wrote, is "attended by its usual train of all that is exhilarating and beautiful; to enliven and adorn the year, and render the face of nature a delightful subject of contemplation to man." His sustained peroration is a little too staged to be entirely effective and the suddenness and simultaneity of nature's awakening (as if all had been dead previously) challenges reality. Forests "put forth their brightest vestures of green"; "birds flutter through their hitherto silent glades"; "flowers unfold their varied beauties to the genial influence of a returning summer sun, and scatter their delicious odours on the balmy winds of the south"; feathered songsters, the insect tribes, silver scaled fish, "even the loathed reptiles," all join "in one universal exhibition of gratitude."

Friday, the first of May, will do to exemplify the approach. "This morning some of our social summer friends, the barn-swallow, (*Hirundo rufa* Gm.) were seen in considerable numbers, sportively performing their evolutions above the Hudson river, in eager pursuit of the few winged insects that have yet appeared, or gliding gracefully along its surface, drinking and

washing their soiled plumage in the placid stream. A few of them had been observed about a week previous, but as they could not succeed in making it summer, they soon wandered away to a more genial climate in the South.” “Vegetation this season has been very slow in developing itself; the following plants have only now for the first time appeared in bloom”: *Ranunculus fascicularis*; *Thalictrum aneminioides*; *Saxifraga virginicensis* (early saxifrage); *Viola blanda* — “This delicate little plant, so familiar to every school-boy that sports in the meadow, possesses medical properties in some degree of strength. It is tonic, purgative, and emetic, according to the doses given from ten grains up to fifty. The usual time for flowering is generally about the 12th day of April, being now nearly three weeks behind the more regular seasons.”¹⁶

Saturday, 2 May, Eights noticed that “some of the tortoises have left their winter retreats, and are seen wandering through the woods, particularly the *Testudo insculpta* of Le Conte. The natural habitation of this species is in rivers and ponds, but they have a singular disposition to travel on dry land, being frequently found at considerable distances from either, and sometimes, even on hills of no slight eminence. They will live some months in a dry place without suffering any great inconvenience.”¹⁷

Monday, 4 May: “Vegetation still continues at a stand.” Irregularities in the Helderbergs and Catskills “yet contain great quantities of snow.” Tuesday, 5 May: lilac flowers open, two species of salamanders, now called red-backed (*Plethodon cinereus*) and two-lined (*Eurycea bislineata*), were found active in wet shady woods — they are vulgarly called lizards, but “the true *Lacerta* is rarely if ever found north of the Highlands on the Hudson river” [presumably, he means the fence lizard, whose distribution he describes accurately]. To a birder today, his use of the term “our social summer warbler” for the purple martin, present in notable numbers on this day, would be confusing; but he referred to its cheering notes and was not using the word “warbler” in a nomenclatural sense. Uncommonly intense lightning activity was noted on both this and the previous day.

Wednesday, 6 May: A white moth, to which Eights misapplies the generic name *Bombyx*, is noticed for the first time; *Ranunculus acris* is now in bloom: a common plant that “is supposed not to be a native, but introduced from some parts of Europe.” He doubted claims that it is deleterious to cattle when it is eaten — at least, as dried hay. Its acrid matter, “chiefly confined to the root,” however, had well-known properties: “before the Spanish fly became its substitute, it was used to some extent in creating blisters, requiring about the space of half an hour to produce the desired effect....And it is recommended as an excellent remedy for the removal of corns and warts.”

Insects were noticed on 7 May: water-boatmen, honeybees, black wasps (the latter two said to be feeding on pollen of greenhouse plants put into the sun). “From some of the numerous pools scattered through the swamps in the neighborhood of the city, several specimens of the red salamander (*Salamandra rubra* Daud:) were obtained this afternoon.” And: “Leather leaf...is now in full bloom in the swamps on the pine plains.”¹⁸

Friday, 8 May: “During the last week the small species of Sturgeon...was for the first time brought to our market, and within the last day or two the larger ones have also made their appearance.” This takes us back to a happier day when Albany was called “Sturgeonville” or “Sturgeonopolis” and the Albany area was “Sturgeondom,” its inhabitants “Sturgeonites,” from the great quantities of sturgeon flesh consumed there. It also draws attention to the Hudson’s noteworthy possession of two distinct species of this primitive fish. Most of the day’s entry was occupied by a detailed and well-informed account of two species of tiger beetles that were by then common in dry sandy and sunny areas. Their larval caverns at that time were very common in the compacted soils of walks at the Academy.¹⁹

Saturday, 9 May: bloodroot, “most profusely in flower on the banks of running streams”; wood anemone (he calls it *Anemone nemorosa*), *Viola cucullata*; *Trillium erectum*; two species of shad-bush are in full bloom (he cites two species of this difficult genus, neither name

now being used). He obtained several specimens of what he calls "yellow water salamander" (then the genus *Triturus* of Rafinesque; now *Notophtthalmus viridescens*), the terrestrial phase of which is the familiar red eft and the aquatic phase the red-spotted newt. He thought them imperfectly described; they were common in the neighborhood of Albany and appeared to be frequently stranded by the overflowing of the Hudson.

Sunday, 10 May: Three specimens of tree frog (*Hyla versicolor*) were collected, all of colors conforming "with the objects upon which they are found." What his "small species of sand snake" may have been, brought out in great numbers by the warm sun of this day, I cannot say. If his use of the generic term *Coluber* can be trusted, it was a black racer.

Monday, 11 May: He found black salamanders numerous "in wet springy places near running streams about the city; they vary, however, from the common description of their species, being as universally yellowish-brown as black." One of his three specimens was regenerating its tail. Willow and tortoise-shell butterflies "have been changed from their chrysalis state into active existence, by the heat of the returning summer sun," and are found along with "several of the numberless species of moth."²⁰

Tuesday, 12 May: Indian turnip (jack-in-the-pulpit), oval-leaved violet (he says *Viola ovata*; is it now *V. sagittata*?), toothwort (his *Dentaria*, now *Cardamine diphylla*) and *Carex varia* (now *C. artilecta*) first noted in bloom. Indian turnip has "a powerfully caustic root when fresh from the ground, and exhibits sensibility in a slight degree upon being rudely grasped," the first aspect being universally known; the second, to my knowledge, a new observation. He now discovered under moss and decayed wood the small elaterid beetle vulgarly called (as he put it) snap-bug — a good enough term, except that the insect is a beetle, so our common name of click-beetle is in that sense more appropriate. His description of its behavior is perfect.

Wednesday, 13 May: The "common Spider, has now, for the first time commenced spinning its widely spread geometrical web in our gardens, indicative of dry pleasant weather." No

species is indicated; one presumes he refers to the strikingly marked orb-weaving garden spider. He found both the white and yellow dog-tooth "violet" (better called troutlily) in bloom. Both the lilies would deserve cultivation "were they not so common"! They are, he goes on, "a popular remedy administered with milk for scrofula among the western tribes."²¹

Thursday, 14 May: Horse leech (in pairs, in shallow ditches); two mollusks, a *Helix* and a *Physa*, are noticed; the beautiful painted turtle (his *Testudo picta* is now in the genus *Chrysemys*) basks commonly along the banks of streams, plunging from sight when disturbed. And on the 15th: Plum and pear trees have just come into bloom in city gardens. A snail is noted in ditches along the Hudson. The following plants are now in bloom: strawberry, wild black currant (his *Ribes floridum*; now *R. americanum*), Dutchman's breeches (now *Dicentra cucullaria*: "this plant when eaten produces cholic, whence one of its vulgar names, cholic-weed," although who would be induced to eat it, I cannot imagine!), spring beauty (now *Claytonia caroliniana*; "it is frequently used in cataplasms, to apply to ulcers proceeding from scrofula") and bluet (*Houstonia coerulea*). Toward the end of the day, "a violent flurry, attended with snow, passed from the west to the northward of the city."

On Saturday, 16 May: A species of *Brachium*, bombardier beetle, is commonly found. "When taken in the hand they discharge a brown caustic liquor, having the odour, and producing the effect of nitric acid on the skin," no more than half the story of this interesting creature. The columbine is just bursting into bloom (this was and is *Aquilegia canadensis*: "In vinous infusions it has frequently been used for jaundice"). "A great number of shad and herring are daily taken in the river near the city," the former inexplicably deficient in fat. (Scientific names are not given; shad would now be called *Alosa sapidissima*; his herring is probably the alewife, *Alosa pseudoharengus*.) Sunny weather of recent weeks had speeded vegetation along: "The season is now very little if at all behind that of the preceding year."

On Monday, 18 May (evidently on the Sunday he had rested), Eights recorded trailing

arbutus in fullest bloom, “whilst the following plants have just appeared”: bearberry (“tonic, diuretic, and an astringent: the leaves yield a black dye, and are not unfrequently smoked by some of our Indian tribes”), gold thread, thyme-leaved speedwell, early life everlasting (“used by the Indians for the bite of the rattlesnake”) and wood horsetail. He had that morning the first visit of the season of a ruby-throated hummingbird; the humming bee (he uses the term *Apis lapidarius*) was also visiting flowers. Plants in flower are: *Epigaea repens*; *Arbutus nva-ursi*, now in genus *Arctostaphylos*; *Coptis trifolia*; *Veronica serpyllifolia*; *Gnaphalium plantaginum*, now *Antennaria plantaginifolia*; and *Equisetum sylvaticum* (not a flowering plant; he refers to its spore-bearing structures).

On Tuesday, 19 May: Several species of grasshoppers are seen; they are the true locusts of various authors — the locusts so-called of popular lore are cicadas, “two species of which are common in the vicinity of Albany; one of them may be seen every summer, and the other makes its appearance in great numbers about once in every seventeen years.” The latter was last seen in Albany in 1826. He correctly reports that, while retaining their regular periodicity, “They vary...as to the date of the year in which they appear in different sections.” The beautiful bluejay “is now quite common in the pine woods” (surely, they were permanently resident, as now?); he notes that “this bird possesses great musical powers” — he might also have pointed out that its domestic whisper song is decidedly pleasing.²²

Wednesday, 20 May: “A few miles from the city, in the shade, the thermometer at 12 o’clock stood at 87° Fahrenheit.” Two turtles are noted: what he calls *Testudo punctata* of LeConte, “every where seen in the pools of clear water about the pine plains” and the painted turtle, previously noted, now seen “in company with its young, the latter being about the size of a cent.” The delicate *Viola lanceolata* and *V. multiberbergiana* are now in flower in moist places; “on the pine plains,” flowering wintergreen (now commonly called fringed milkwort), a species of cinquefoil, whortleberry (*Vaccinium*), and a scrub oak have just flowered.²³

Thursday, 21 May: A species of snail (*Helix tridentata* Say, he says) was found in considerable numbers; lilacs were in full bloom in gardens; the following native plants were seen in bloom: *Trillium grandiflorum*, *T. erythrocarpum* (now *undulatum*) and *T. cerinum*; the bellworts *Utricularia sessifolia* and *perfoliata* — “this last when chewed, the saliva is said to be used with beneficial effects in diseases of the throat and mouth”; red-berried elderberry — “said to be baneful to the feathered race, and also poisons insects and mice. The bark yields a black die [!], and is oftentimes used to give a fine flavor to vinegar and wine.” Also in flower: rue anemone (then called *Leontice thalictroides*); geranium — “a beautiful plant, and deserves to be cultivated in gardens, by which process, it sensibly improves; it is not unfrequently used in bowel complaints, and by the Indian it is highly esteemed for a variety of diseases”; two species of wild cherry (wild red cherry and choke-cherry); wild ginger — “a most excellent substitute for ginger in every respect, and it has been used with fine effect in a variety of spasmodic diseases.”

Friday, 22 May: a day for invertebrate observations — three species of mollusk in the Erie Canal; two species of *Helix* snails in shady ravines. Most of the entry was taken up with dermestid beetles (*Dermestes*), then commonly found “wandering about in search of some proper object, upon which to deposit their eggs.” He writes at length of the destructive habits of the larvae, especially among dried specimens in a natural history collection — but notes also their usefulness in speedily cleaning even the most delicate skeletons of mammals or birds without the least damage to the bones.

Saturday, 23 May: a mixed bag. A great number of membranous wings are seen on the surface of a dead and decaying tree — newly shed by swarming individuals of a small black ant; he alleges that they belonged to males and females which, “having accomplished the grand purposes of their existence, had just shed them,” while the neuters, or workies...were industriously employed in carrying in food, and preparing the cells for the accommodation of their [whose?] future progeny.” Small limbs

could be seen developing on tadpoles. A passer-by "observed that he had often heard they turned into frogs, but never had been able to discover the tails which they must have shed!" Evidently, he did not learn from Eights, who tells us only: "As the legs expand, these now useless appendages become gradually obscured by the great extension of the powerful muscles and teguments of the hinder legs." Song from summer-resident birds is noticed: no details.

Monday, 25 May: Cherry and apple trees are in full bloom; neither they nor pears sustained any injury during the past severe winter that almost entirely destroyed the peach crop. White-lipped snails (his *Helix albolabris*), kept in a closed pill-box, soon withdraw into their shells and secrete successive layers of a slimy substance that dries into a secure protection. The substance "effervesced in nitric acid, indicating the presence of carbonate of lime. With others I amused myself by sawing out, with a pen-knife, square pieces of the shell, varying at each time its situation, and in a brief space of time, the parts removed were replaced by the same viscid substance, which became indurated like the remainder of the shell."^{23A}

Tuesday, 26 May: An extended note on the black bass, which he calls *Cichla fasciata*, Lesueur, and holds to be "peculiar to Lake Erie; it was never found in our waters until the completion of the Erie canal, since which time it is not unfrequently taken along our wharves, and also in the canal, together with several others which have heretofore been exclusively confined to that lake." Unfortunately, the "others" are not named. A mussel and some aquatic snails were seen today. Plants first observed in flower today were: *Zizia*, a parsnip family genus, the species *aurea* and *aptera*; three species of violet, *Viola pubescens*, *canadensis* and *pedata* (*V. pedata* is not a wide-spread species in upper New York); two species of wild cherry (his *Cerasus borealis* and *obovata* — now *Prunus pennsylvanica* and *virginiana*); beaked-cornsalad (*Valerianella radiata*), another rare species.²⁴

Wednesday, 27 May: There was a well-defined halo around the sun, "indicative of moisture in the atmosphere, and consequently rain." The boxturtle, called by him *Testudo clausa*, is "not unfrequently met with in warm

sandy exposures; it is this species upon which individuals are in the habit of inscribing their names." "The very beautiful and very fragrant Pinxter blomache...has just appeared in bloom"; so has red baneberry (then *Actaea rubra*; now *A. spicata rubra*).²⁵

Thursday, 28 May: A notable salamander record and a retrospective on "popular prognostics indicative of rainy weather, a number of which were observed this morning [does he mean he observed prognostics or rainstorms?]; rheumatic old persons complain of aches, cats wash their faces, dogs grow drowsy, hogs run with straws in their mouths, leeches in jars become uneasy, flies bite and frogs are noisy, spiders forsake their webs, and are seen crawling on walls and fences, cirrous clouds, commonly called mares-tails, in the sky, insects draw nearer the earth as moisture accumulates in the atmosphere, consequently swallows skim the surface of the earth in order to obtain them." "The first thunder this month occurred to day during a shower" (one wonders how there could have been the dramatic displays of lightning on the 4th and 5th of the month without thunder being heard). And the salamander: "A fine specimen of the *Salamandra tigrina*, Green, was brought me to-day, having been taken within a few miles of the city, this is the second specimen yet found as far north as this: it measured seven inches in length, the first was caught in our streets, having been brought to the city in a hollow piece of wood down the Erie canal."²⁶

Friday, 29 May: Baltimore orioles or hang-birds are "now not unfrequently met with in the trees of our gardens." Eights takes issue with Shakespeare's pronouncement that "the poor beetle that we tread upon, feels a pang," and so on. On the basis of his own observations and accounts he had read, he suspects them indifferent to pain. The aurora borealis was faintly visible in the evening.

Saturday, 30 May: A marsh hawk (harrier) was shot in a wet meadow near the river, a species, he says that "is not frequently met with in our region," but I suspect he meant to write "not unfrequently." He found the remains of a fish in its throat, a rather uncommon food. Among plants now observed in bloom: false

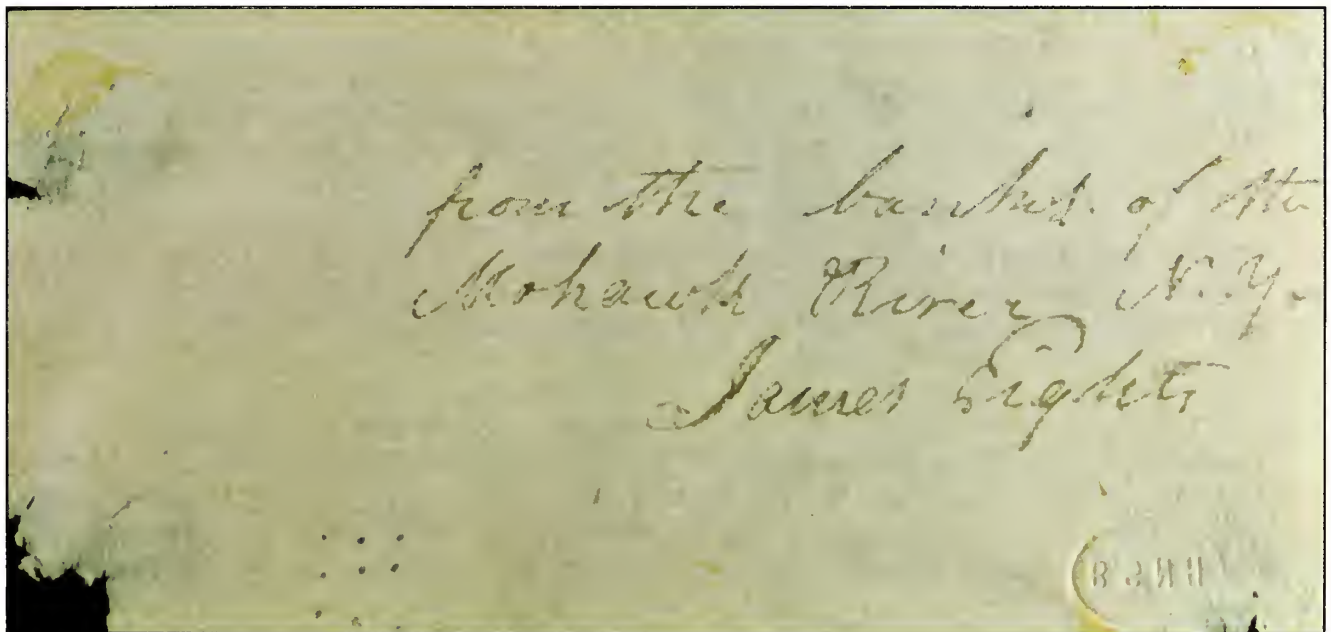


Figure 12.1. Tiger salamander (now *Ambystoma tigrinum*) one of two specimens reported by James Eights. The species is now unknown as far north as Albany. This original drawing (now in the Boston Science Museum) is about 2 3/4 x 4 3/4 inches. It was probably meant to accompany a report that was never published. It is reproduced here by permission, through the courtesy of Carolyn Kirdahy.

sanicle (*Mitella diphylla*); mitrewort (*Tiarella cordifolia*); bladder nut; two species of hawthorn; five buttercups (his *Ranunculus sceleratus*, *lacustris*, *repens*, *intermedius*, and *bulbosus*); honewort, *Cryptotaenia*; his *Cardamine rhomboidea*; his *Dentaria laciniata*; *Arabis lyrata*; the sandworts *Arenaria stricta* and *serpyllifolia*;

Pedicularis canadensis (lousewort) and what he calls *Carpinus arenaria* (perhaps a mistake in specific name; Rittner credits him with *C. caroliniana*).

And Sunday, 31 May: The garden shrub, snowball viburnum, is in full flower and what was probably a species of rose-leaf roller cater-

pillar was then committing great ravages on roses.

Thus, James Eights and the first month of his natural history of Albany. His second month, for June 1835, follows.

Monday, 1 June: Moccasin flower and large yellow lady-slipper orchids (now *Cypripedium acanthe* and *C. calceolus pubescens*) are for the first time in bloom. While prize flowers for the garden, they prove difficult to cultivate; he reported a considerable, continuing demand for roots for the trade for transplanting in Europe, because they usually die out right away.

Tuesday, 2 June: Caterpillars of the leaf-roller previously noted "have now extended their devastation indiscriminately to all the trees of the garden, which they greatly disfigure." Strong suds and saturated salt solution do not accomplish their destruction; he supposed the only way to diminish their numbers was the tedious one of "picking them off as fast as they are discovered." Among plants newly in bloom: *Lupinus perennis*, "the beautiful blue lupine...every where in bloom along the pine plains"; his woodbine (honeysuckle), *Lonicera parviflora*, presumably now *L. dioica*, in rocky situations; Mayapple, in light woods; dwarf ginseng and water avens in more moist habitats; and *Styrandra bifolia* of Rafinesque. Major Fay's hedge of English hawthorn on Arbor Hill is in full bloom; a lunar corona was visible this evening.²⁷

Wednesday, 3 June: Nighthawks were observed for the first time just after sunset today; his comments on differences from whip-poor-wills would be helpful only with a specimen seen under very favorable circumstances. While his characterization of the sound produced by the male nighthawk's wing feathers is apt, he supposes the noise "uttered," rather than a mechanical one. There follows a quite long account of a kind of fly here identified as the stable fly, *Stomoxys calcitrans*, but noted in his July installment as *Musca carnaria*. Whether the latter species name is still valid is immaterial: His fly was obviously not the stable fly, which breeds in decaying vegetation — the young of the one he described (one of the best examples, he held, "in which the admirable

wisdom of our Maker is...strikingly displayed, in his benevolence to the human race") fed upon putrefying flesh. The same heat that produced the fastest putrefaction speedily roused these insects from "their hybernating torpor" and "they immediately set about the great purposes of their existence." Dead bodies of animals are soon "covered by myriads of these little scavengers [he notes that the females are equipped to take immediate advantage of a carcass and its evanescent supply of food, in that they deposit young maggots, not eggs, upon the food supply], voraciously devouring it as fast as putrefaction ensues, and by that means preserve the air pure and undefiled, for the healthful supply of the human family."

Thursday, 4 June: He notes various small mollusks, both terrestrial and aquatic. In the evening, he watched the ascent of an illuminated balloon, during which it twice changed its horizontal direction of movement, as it intercepted differentially moving masses of air. Its final movement was from west to east, contrary to the flow of air at lower elevations. That air currents first changed directions at higher elevations and gradually descend to earth he thought proved by the fact that wind directions the following morning were from the west. A skillful meteorologist will be able to predict wind directions some hours ahead, he thought, "by observing attentively the course of the clouds, in the superior regions of the air."

Friday, 5 June: During a thunderstorm, he calculated the distance of lightning flashes by counting the seconds of time that elapsed after a flash. Fireflies were observed tonight for the first time this year. A friend of his, he claimed, had found that if he imprisoned a firefly under the crystal of his watch, he could agitate it, causing it to flash, and he could tell time in the dark.

Saturday, 6 June: A quarry of quite beautiful green jaspery slate has been opened on the Normans Kill. New plants now in flower: white-flowered elderberry, *Sambucus canadensis*; tree cranberry, hobblebush and maple-leaved and pear-leaved viburnums (all genus *Viburnum*, species *opulus*, *lantanoides*, *acerifolium*, his *pyrifolium* — his pear-leaved species — is

perhaps now *undum*); red and white clovers, presumably *Trifolium pratense* and *repens*; hounds-tongue, *Cynoglossum officinale*; forget-me-not (he says *Myosotis arvensis*, but the matter is too complex to be sure of his identification); robins plantain (he says *Erigeron bellidifolium*, but it is perhaps a species of *Antennaria*); American water-cress (he says *Cardamine hirsuta*, a rare escaped species); two species of *Kalmia* (he claims *angustifolia*, sheep laurel, and *glauca* var. *rosmarinifolia* — the latter is now perhaps *polifolia*); flowering dogwood and dwarf cornel or bunchberry (*Cornus florida* and *canadensis*); two orchids, *Orchis spectabilis* and *Arethusa bulbosa*; *Suillacia racemosa*; *Utricularia grandiflora*; *Clematis verticillaris*; *Stellaria longifolia*. There was a beautiful colored corona about the moon at night.

Monday, 8 June: Eight makes no argument in regard to remarks by “our oldest inhabitants, that the waters of the Hudson river have been gradually diminishing in quantity within the period of their remembrance.” He attributed it “to the circumstance of evaporation proceeding with more rapidity and to a much greater extent, as the lands from time to time become cleared and cultivated about its numerous supplies.” Channels change direction, islands of deposits form anew; higher water levels at former times he thought proved by strata of deposits now about six feet above high water mark, yet containing clam shells of a species still inhabiting the river.

Tuesday, 9 June: House wrens have again taken possession of a birdhouse in the family’s garden. He described their skillful maneuvers as they brought long sticks into the nesting cavity. The larvae of the leaf-rolling moths, previously so destructive, have run their course. The clammy locust, a cultivated form, is in bloom; the everlasting *Antennaria* in flower 18 May is everywhere in seed.

Wednesday, 10 June: He describes the wood-louse (pill-bug, a terrestrial crustacean) and its habit of rolling into a bead-shaped ball when disturbed, “bearing pretty harsh treatment before they would acknowledge their vitality by moving.” He avers that “these insects [!] formerly were in great use to cure

agues, consumptions, and a variety of other diseases, and were as deservedly popular as a host of the patent medicines of the present day”! “Their spherical form must have greatly facilitated the administering, and probably first suggested their use as such.” In the pine plains, he noted the first flowering of what he called veined hawkweed (*Hieracium venosum*), “when bruised or chewed has been used to apply to the bite of rattle-snakes”; his crosswort, whorled loosestrife (*Lysimachia quadrifolia*); Jacob’s-ladder, *Suilla herbacea*; and a meadow-rue that he calls *Thalictrum purpurascens* (now perhaps *T. dioicum*).

Thursday, 11 June: Another example of insect indifference to severe injury, in the case of a bumblebee. Bobwhite quails were very noisy in the afternoon, “whistling at intervals of a very few seconds, in recently cleared fields about the pine plains. There was also an unusual activity and bustle among the inhabitants of the ant-hills...both of which are considered as indications of forth-coming rain. It is a very singular circumstance, that these animals [both species?] often denote the changes in the weather by their particular motions and habits; it is owing no doubt to some peculiar sensibility in them to electricity, or other atmospheric influence.” Of the mussel *Symphynota compressa* (now *Lasmigona compressa*), he notes: “It is a very curious fact that this singular bivalve should be found only in the Ohio river, and in the Normans-Kill near this city. They are not, however, as common in this last locality as the other shells of the family. I obtained several specimens to-day, but nearly all of them imperfect, having been injured by...the musk rat, the marks of the teeth are plainly to be seen on the external side of either valve.”²⁸

Friday, 12 June: “The side-saddle flower, or pitcher-plant (*Sarracenia purpurea*, Linn:)...is now most profusely in bloom in the sphagnum pools about our city.” He alleges a need of the plant for a regular supply of moisture, supplied to it by nature’s provision of cup-shaped leaves “with their orifices upward, in order to catch the falling rains, and by that means they serve as cisterns for nourishing the plant throughout the dryest seasons.” However, he also notices

the need of the plant for "a certain proportion of animal substance," made possible by "a most wonderful provision in nature," the inward-pointing spines that prevent intruding insects from escaping from the pitchers of water. Leaves invariably contain "about a thimble full of remains of insects," chiefly beetles. Eights wondered at swarms of tiny gnats that were able to fly throughout a period of brisk rainfall, crediting them with "a vast degree of skill in navigating thus freely through the falling drops." The orange lily, *Lilium bulbiferum*, of gardens has commenced flowering. Other plants in full flower: silvery cinquefoil, *Potentilla argentea*; deer-berry, *Vaccinium stamineum*; "the beautiful fragrant *Asclepias quadrifolia*; golden ragwort, *Senecio anrea*; "and in running brooks," water speedwell, *Veronica anagallis*.

Saturday, 13 June: "On the sandy pine plains and on road-sides, the yarrow (*Achillea millefolium*, Linn:) is now just coming into bloom. The root of this plant is much in use among our western Indians as a remedy for tooth-ache. Their manner of using it is after bruising or chewing, to apply it between the tooth and cheek, where it is suffered to remain until the pain is removed. I once saw it used with beneficial effect, but considered it rather a harsh application, owing to its burning pungency. The blue flag (*Iris versicolor*, Linn:) is all over in flower in wet places, both on hills and plains. This is kept in ponds by the southern tribes, and much used by them as a purgative." He comments upon the "error of instinct" that induces moths and other nocturnal insects to enter a room when a lighted lamp is placed at a window to lure them inside.

Monday, 14 June: There is an extended commentary on aphids, now found in prodigious numbers on snowball trees. Ants are supposed by many to feed upon the aphids but, in fact, they are interested only in obtaining the "honey which is voided with their excrements." Other people aver that ladybird beetles are "great evils in our gardens, and some have supposed that they were the authors of these aphides; on the contrary, they are of great benefit to us, for they feed almost altogether upon them." He notes

presciently: "What a great pity we could not light upon some method of multiplying these little insects." He quotes recent authority to the effect that aphids are at one time viviparous, "at another oviparous;...the intercourse of one original pair, serve for all the generations which proceed from the female for a whole succeeding year." One calculation had it that in five generations, "one aphid may be the progenitor of 5,904,900,000 descendants: and it is supposed that in one year, there may be twenty generations." He dryly comments: "upon learning this fact, our wonder at meeting with such prodigious numbers...will probably cease." Add the following plants that have come into bloom: cucumber root, *Medeola virginiana*; bush-honeysuckle, now *Diervilla lonicera*; brook-lime, his *Veronica beccabunga* (if correct, this is an escaped plant); round-leaf wintergreen (or leathery shin-leaf), *Pyrola rotundifolia*; blue-eyed grass, his *Sisyrinchium anceps*, now *angustifolium*; rock-rose or frost-weed, *Helianthemum canadense* — "this plant is used by empirics for curing scrofula, in decoctions and cataplasms"; dwarf scabish (an evening primrose); none-such (black medick, *Medicago lupulina*, an escaped legume); ox-eye daisy, long familiar as *Chrysanthemum leucanthemum*, this is now *Leucanthemum vulgare*.²⁹

Tuesday, 16 June: "The *Salamandra subvioletacea* of Barton is occasionally found in the deep woods under decaying trees and logs; a mutilated specimen was obtained to-day a few miles from the city. I had previously found them in Washington county, in this state." He comments upon salamanders' mythical ability to survive fire, supposing it due to secretion of "such an uncommon quantity of a viscous substance" from the skin that a moderate amount of flame might be extinguished. This is also the time of emergence of mayflies (he calls them "ephemeral flies") and they are to be seen in immense numbers beneath trees near the water, where for hours on end they may be seen flying, "ascending and descending in the air, as if dancing." They soon perish in immense numbers and "yield an abundance of food to the various fishes...particularly so to the trout. Anglers to be successful, should by all means use them as bait, or construct their artificial flies

after their model as long as they are in season."³⁰

Wednesday, 17 June: "The following native plants were observed to-day for the first time this season in bloom": Ground-ivy, *Glechoma hederacea* — "This plant has been used for curing acute head aches by snuffing it up the nose"; frost grape; hare-bell *Campanula rotundifolia*; sweet briar, *Rosa rubiginosa*; silver-weed, *Potentilla anserina*; "*Cerastium tenuifolium* Pursh, just passing into seed." Most of the day's entry — for the delight of the less squeamish — concerns the elegant habits of ichneumons, whose females, by means of an enormously elongated ovipositor, place their eggs in or on the body of a living caterpillar or pupa of a lepidopterid.³¹

Thursday, 18 June: This long entry is taken up with a fishing story, recommended to those who like to read fishing stories. It starts out with the observation that the snapping turtle (his *Testudo serpentina*, now *Chelydra serpentina*) "is not uncommon in the standing pools about the city. I saw them this morning offered for sale in our streets, and also had an opportunity of observing them in their more proper element." Some local reader may be able to guess where Eights was, as "upon emerging from a noble forest of lofty pines, I beheld a fine sheet of water spread out before me, exceedingly picturesque in its appearance, though contracted in its dimensions, upon the brink of which was quietly seated an individual, attentively engaged in watching the cork of his line which was gracefully dancing in the light ripples of its surface." Upon being told that the aim was to catch "'cat-fish and eels,'" the evidently sceptical Eights elected to wait for evidence. The result, more than once, was a painted turtle — the patient fisherman admitted to having caught seven that morning. A final episode resulted in his bringing to light, but not to creel, an enormous snapping turtle that broke his hook and escaped. He stoutly insisted that "plenty" of catfish and eels were still to be found there.

Friday, 19 June: "Since the last enumeration of native plants, the following have been observed in bloom": swamp rose (*Rosa carolina*); seneca snake-root, *Polygala senega*; white honey-suckle (clammy or white azalea), *Rhododendron*

viscosum; Solomon's seal, his *Polygonatum multiflorum*; fever root (horse gentian), *Triosteum perfoliatum*; *Anemone pennsylvanica*; *Houstonia longifolia*. There follows an account of scale insects, the damages they cause and how they must be destroyed on sight. The freshwater mussel, "*Unio radiata* of Say has within a few years become quite common in the canal at this place; this is a very fine bivalve shell, and appears to thrive much better in this situation than in the Hudson river."³²

Saturday, 20th June: Under the name of American ticks, with the scientific name *Acarus americanus* then in use, the prevalent species is noticed as "now very numerous in our light woods, particularly among the alder trees [species not identified]. They are voraciously inclined for blood, of this I wish no better proof than the circumstance of obtaining two specimens from the back of my neck, where they were industriously employed in inserting their serrated rostrums through the cuticle into the flesh." And: "At the half-way house on the rail road, I observed the nest of a swallow situated on the frame of the window, under a piazza in the second story, and an accident deprived me of the satisfaction of making myself more intimately acquainted with this interesting bird. As its habits are so distinctly different from any of the known swallows of this country, I have little doubt that it will prove to be an acquisition to the catalogue of American birds. The *Hirundo urbica* of Linn: is very common in Europe, building its nests in like situations, and I should not be surprised, if, upon close examination, it should prove to be the same species; if so, this will be the first notice ever made of it in our country. The cliff swallow, described by the late Gov. Clinton, builds under the eaves [!] of houses; but its peculiar nests are easily distinguished from all others of the Hirundine race, in having the entrance formed similar to the mouth of a chemical retort. The female was sitting on the eggs." Flowers in bloom for the first time: *Lilium philadelphicum* (wood lily) and what he calls *Convolvulus spithameus*, presumably the low bindweed, now *Calystegia spithamea*.^{32A}

Monday, 22 June: Cool, wet weather has beneficially reduced the numbers of voracious

caterpillars, compared to previous years. And a lesson in microentomology: "To-day, while my eye was directed through the microscope — that avenue to concealed glories, — a number of flies were allured into its focus by some small lumps of sugar, upon which they immediately commenced exercising the full force of their suction pipes: but before they could derive any nutriment from it, I observed that they were obliged to resort to a method of first converting it into a liquid state by occasional discharges of a fluid substance, previously supplied from vessels or fountains, situated internally, at no great distance from their mouths, in a manner very similar to that in which saliva is produced from the glands in man, during the process of mastication."

Tuesday, 23 June: The evening primrose, *Oenothera biennis*, "has now commenced flowering most profusely." He notes that this flower of the night "is one of Flora's time-keepers, expanding their large yellow corollas about the setting of the sun, and as regularly closing them again at its appearance in the morning, peacefully slumbering throughout the ungenial heats of the day. The flowers are fragrant, and are said to be phosphorescent at night. The leaves are sometimes bruised and applied to wounds." He observed what he took to be an instance of cannibalism in a female spider ("no doubt her own mate"), a ready explanation, he thought, for the fact that male spiders are rarely met with.³³

Wednesday, 24 June: Obviously, a day devoted to insecticide — thoughts on how one can become his own "Sampson" and "slay his many thousands, and on the succeeding season he will have great cause to congratulate himself that his labor was not bestowed in vain." As for aphids on plum trees, that soon disfigure leaves, he encouraged "the free use of some of those simple [unnamed] remedies recommended in the various works on horticulture."

Thursday, 25 June: Plants that are now in bloom: his sleek mullein (moth mullein), *Verbascum blattaria*, an introduced species, "in old stony fields and sides of the way"; vervain, *Verbena rostrata*; upright loosestrife, his *Lythrum stricata*; beard-tongue, his *Pentstemon*

pubescens; lady-slipper, *Cypripedium spectabile* (presumably now *reginae*, the showy lady-slipper); his poke root, by which he means false hellebore, *Veratrum viride* — "a poison to all insects, and has been used with success to kill cockroaches"; common cockle (corn-cockle), *Agrostemma githago*, an introduced species; partridge berry, *Mitchella repens*; clasping bell-flower, his *Campanula amplexicaulis*; snapdragon (he means butter-and-eggs, *Linaria vulgaris*, a naturalized plant); motherwort (*Leonurus cardiaca*, a naturalized plant). His "cross-ear bass-wood, *Tilia pubescens*," is perhaps to be equated with *Tilia heterophylla*, an introduced tree, but may be a mistake for the native *Tilia americana* or a form of it. And: white avens (he says *Geum virginianum* but may mean today's *G. laciniatum*) — "this plant is much used in decoctions, and it is stated upon good authority, that by long use it is capable of restoring to health the most shattered and feeble constitutions." Seeing an abundance of hornets, and wasps of various species, he assures us that we may shortly expect the number of flies to diminish, "as these insects devour them in vast numbers." French butchers welcome wasps around their stalls, as they drive away flesh flies; "and we are told, that in some parts of our own country, the inhabitants are in the habit of suspending a hornet's nest in their sitting rooms, the occupants of which eagerly prey upon the flies, without molesting any of the members of the family." An abundance of wasps also denotes a bountiful season of fruits.³⁴

Friday, 26 June: Dogbane (Indian hemp) is now coming into full bloom. "This is one of those singular fly-catching plants: the insects being entrapped by the irritability of the stamens, which close upon them immediately upon being touched. That these vegetables derive nutriment from the animal matter thus obtained, has been much questioned by many experienced botanists, but of this fact I think there can be little doubt, for nothing in nature has been created in vain, consequently, these ensnared insects, must unquestionably be subservient to some important purposes in their economy, and the experiments of a nurseryman in London I think have decided the point in

question in a most satisfactory manner, for he found that upon supplying the leaves of one of these plants with fine filaments of rare beef, that it thrived better, and was far more luxuriant in its growth than those that were not so treated. The powdered root of this plant when used fresh, is considered equal to ipecacuana as an emetic, thirty grains being given at a dose; in smaller quantities it acts as a tonic. Chewing the fresh roots and swallowing the juice, is by some of the Indian tribes considered as a specific in syphilis — Its nauseous bitter taste, however, is a great objection to its popular use.”³⁵

In the evening hours, Eights caught a specimen of the scarab beetle, genus *Copris* of Latreille, lured into his room by a light. He found the animal infested by “a great number of minute parasitical insects belonging to the Aphidae distributed in various situations, about the head and thorax, and also on the thighs, having with their slender rostrums, perforated the hard corneous covering, and quietly employed in pumping out the fluids at their leisure; and it was with some difficulty that they could be removed.” He supposes all insects are each beset with its peculiar parasites — perhaps there are as many parasites as host species. “I have seen it asserted, that even those parasites, minute as they appear, have others again to prey upon them.”³⁶

Saturday, 27 June: Examples of mountain laurel (*Kalmia latifolia*) were brought “from the limestone range of the Helderberg mountains, fourteen miles west. This is the nearest locality to the city of Albany, in which this beautiful plant thrives.” “It is from this plant that the bees extract the honey, which oftentimes proves so deleterious to the health of individuals who have eaten it.” He repeats accounts that the flesh of ruffed grouse becomes poisonous when they are forced to feed extensively on this plant.³⁷

Monday, 29 June: A long disquisition on fireflies, whose splendid displays of light may be seen to perfection by “the individual who has occasion to walk out a short distance beyond the boundaries of our city an hour or two after the sun has set, just when the shadows of night have spread deeply over the

land.” Particularly great numbers of them may be seen if the pathway leads near a morass or standing pool of water. While the flight of these insects seems undetermined and deviating, the observer “will have cause to observe some one, or more of them, darting through the air like an eagle swooping for its prey.” He thought the flights motivated by the same interests as eagles: namely, the pursuit of food. They are great benefactors of the human race, since “their natural food consists chiefly of gnats and moschetoos, vast numbers of which they devour.” He comments upon the fact that insect prey species of fireflies had selected these wet areas as safe places to deposit their eggs; but the mature gnats and other flies, when forced to leave the security of the water, are “immediately seized and speedily devoured by the watchful fire flies, long ere they could have an opportunity of even once beholding the light of day.” The function of the flashing, he thought, was that of luring and directing the male fireflies to the females, for the males, were “not endued with light, or possess it in a very feeble degree.” “These insects are to be observed most numerous just as the darkness sets in, flying very low, but as midnight approaches, they become more scattered, and then gradually put out their lights.”³⁸

Tuesday, 30 June: And, at the end of June, an entry bears quoting: “I remember having read somewhere, that a lively old lady, by way of consoling an invalid friend of hers, who was complaining most bitterly of her annoyance from fleas, said: ‘Don’t you like fleas? Well, I think they are the prettiest little merry things in the world. — I never saw a dull flea in all my life.’ If this facecious [!] old lady had but accompanied me this afternoon, during a short ramble I took to the neighborhood of the city, I think she would have been exceedingly delighted at the animated spectacle, presented, by a prodigious assemblage of her favorite little vaulters; for I sincerely believe that the king of the fleas held his court in the place I visited. In pursuit of the chrysalis of a peculiar and beautiful species of moth, whose caterpillar generally selects old ruinous buildings for its purpose, I passed the threshold of an ancient and delapsd

[!] barn, whose situation, it can with truth be said, was open, airy, and spacious, and from the arrangement of its scanty and uncouth furniture within, I should readily conclude, that it 'oftimes proved the blessed abode, of' — hogs, belonging to both the biped, and quadruped families. In a short time, in consequence of their rapidly increasing numbers, I was constrained to beat a speedy retreat, and upon issuing from beneath the ample, festooned, cob-web curtains, I found my clothes almost every where occupied by them, skipping about in all directions, and it was with the greatest degree of endurance that I could refrain from something more than an occasional skip or two in return." Finally, a dour note, likewise worthy of quotation: "This has proved a cheerless, dreary, November-like looking day, with heavy masses of clouds driving with the wind, from the west." In June, too!

Despite that gloomy footnote to June just quoted, Wednesday, 1 July brought forth a cheerful comment: "The season has now arrived when the excessive heats of summer may naturally be expected to prevail, and when the atmosphere, teeming with electricity, most frequently seeks relief in repeated lightnings, attended with copious rains; by that means purifying itself, and cooling the earth's surface with refreshing showers." The entry in fact is a long retrospect on the summer season and not a proper phenological report at all. A brief note in regard to cessation of bird song is pertinent but unspecific; his comment that the calls of the whip-poor-will "may again be heard" is worth noting.³⁹

Thursday, 2 July: Eights records an example of what he thought "might with propriety be considered a close approximation to reason, rather than to the operations of animal instinct," in what he termed a *Sphex* wasp. He describes the maneuvers of a female that had dug a deep hole in clay soil, then captured a large spider ("having deprived it of existence by a puncture from her venomous sting"). She had a great deal of trouble flying with the spider, whose legs projected so far they obstructed her wings. "After considerable perseverance, the true nature of the impediment appeared

suddenly to occur, when she immediately descended to the earth, and deliberately proceeded to remove successively the obstacles [the spider's legs?] and seizing her prey as before, soon bore it away triumphantly on her course."⁴⁰

Friday, 3 July: "The yellow vapour [first reported the afternoon before] still continues spread through the heavens, and the weather has become exceedingly warm, with little or no wind stirring." He procured, from a piece of wood that had lain for many months in the woodshed, a specimen of *Anobia* (a death-watch beetle). He comments on the singular ability of their larve to subsist on the driest wood, one of them "having been known to subsist for months on the ligneous fibres of a chair, which had been baked for fifty years before the fire." He accounts for the popular name of the group among the superstitious, who impute premonitory powers to the animals and believe their ticking sounds in wood imply that a death will occur in the family. Brilliant and beautiful northern lights were seen to the northwest in the evening.

Saturday, 4 July: Cherries and red raspberries are being hawked through the streets. He had just witnessed the emergence of specimens of the willow butterfly whose caterpillars he had fed in his room. Each was "fourteen days in the chrysalis before it emerges the perfect fly." He saw again the ascent of illuminated balloons in the evening sky, which "afford us an excellent opportunity of observing the direction of the winds in the superior regions of the air."⁴¹

Sunday, 5 July: Many willow butterflies have emerged into the adult state; "as soon as they became sufficiently prepared to range the fields, they invariably discharged a drop of a reddish fluid, very much in appearance like that of blood. These blood-like drops have not unfrequently been the cause of a great deal of terror and alarm in some parts of Europe."

Monday, 6 July: "I obtained to-day a mutilated specimen of the soft-shell tortoise, (*Trionyx ferox*. LeConte,) which had been captured by a fishing party under the Cohoes Falls on the Mohawk river. It measured seven and a half

inches in length, and was of a palish green colour. The dusky spots scattered over its back were also fewer in number and of a much lighter hue than any that I had hitherto seen. It was taken with a hook baited with a portion of a small fish. The propriety of its specific name, *ferox*, has been much questioned by recent naturalists, in consequence of its seldom having exhibited a disposition to bite; however, I am told, that in the West they have been known to do so, and that too, severely, and I myself had an opportunity of witnessing a large one from Cayuga Lake in this state, dart out its head ferociously at a dog which had been purposely brought near, and take from its side a mouthful of hair in the attempt." He reports specimens of the clams *Cyclas dubia* and *C. rhomboidea* (now in genera *Sphaerium* and *Pisidium* respectively); the former occurs sparingly in the Erie Canal, the other is found in the Normanskill. *Polanisia graveolens* (stinkweed, clammyweed; species now *dodecaedra*) is now abundant along rivers; one-leaved cancer-root (he means one-flowered; *Orobanche uniflora*), common in shady ravines; the same is true of cow-wheat, *Melampyrum lincaire americanum*. Bladderwort, *Utricularia gibba*, "is just flowering in the pools about the pine plains."⁴²

Tuesday, 7 July: He refers to three species of terrestrial snail, genus *Helix*, two of which are found at Albany. Plants found in bloom today: field bindweed, *Convolvulus arvensis*, a naturalized species that "has become quite common on the banks of the canal since its completion, the seeds are supposed to have been transported by its waters to its present position. It possesses a yellow ingredient for dyeing." Also: New Jersey tea, *Ceanothus americana* ("The leaves of this plant yield a tea very similar to that produced from Bohea, and was freely used as a substitute for it during the revolutionary war. The roots are used for giving a red dye"); great willow-herb or fireweed, presumably *Epilobium angustifolium* — a species he thought worthy of cultivation for its beautiful flowers. Also in flower: arrowhead, *Sagittaria heterophylla* (said by him to be rare); hedge hyssop, "common in wet places"; sweet scented bedstraw, *Galium triflorum*. He found *Pyrola asarifolia*, *elliptica* and

secunda (wintergreen, shinleaf), "all in bloom in the shades of the pine forests and along their edges"; lady's-tresses, his *Spiranthes tortilis*, "have just commenced flowering for the season"; pale touch-me-not, *Lupatius pallida* ("The decoction is frequently used with success in jaundice and asthma, it is also sometimes used for colouring wool of a saffron hue"); twin-flower, *Linnaea borealis*, "found to-day on the pine plains...not often seen in this vicinity."⁴³

Wednesday, 8 July: The stalking activities of a species of "hunting spider" (evidently a jumping spider), "now very common," is described. Its agility is admired and its ability to jump unerringly upon prey from almost any angle is well described. "Dark spots may be discovered on the sun's disc by the aid of a telescope of moderate magnifying power."

Thursday, 9 July: "This morning I saw a fine collection of eels from the Erie canal a few miles from this city. The immense size of some of them I think renders their claims to a nativity in these waters a very questionable circumstance. In all probability, they may have been introduced from the Schoharie, or the Mohawk rivers, although the canal elsewhere abounds with them; and I am told that in some places to the west, they materially effect [!] its security by boring into the banks, and by that means, not unfrequently cause a serious rupture. It has repeatedly been stated...that there are no eels found above the falls of the Niagara, either in Lake Erie, or any of its tributary waters; whilst below the falls, in Lake Ontario, and the various streams that empty into it, they are very numerous. This...is universally attributed to the circumstance, that although these fish are admirably adapted and fully capable of ascending any falls of a more moderate elevation, they are totally unable to stem this mighty torrent. However, I think that these waters are not destined to remain much longer untenanted by them, judging from the fact of the black bass and some other of the fishes, which have hitherto been considered as being exclusively confined to Lake Erie, having been repeatedly caught within the last year or two, in the Hudson river along our wharves." The terrestrial snail, *Helix arboreus* of Say, is noted. Eights

circumspectly investigated an incident of this day — it being, as he said, “one of those scenes which distance lends enchantment to” — where a man had just shot a skunk. The man’s dog, however, was not so fortunate and “was ploughing in every direction, deep trenches in the sand, in order to free his nostrils from its pollution.” The man accounted the skunk a serious predator upon his eggs and poultry. Eights was a trifle skeptical of a story regarding two residents of the New York community of Geneva (as reported in Doughty’s *Cabinet of Natural History*) who encountered a skunk. One of them received a direct hit in the eyes; recovering, after a period of painful inflammation, he discovered that he had the ability to see accurately in the dark!⁴⁴

Saturday, 11 July: While not a specific observation, his account of the great variety of oaks in America is well taken. This is always a matter of remark by observant foreigners. There are, he claimed, more species of native oaks in North America than there are species of forest trees in the entire European flora; he brings attention to the fact that there are 75 or more species native to the United States, contrasted with but a single native species in England. Currants and gooseberries are offered for sale in the streets. Two species of mussel (he calls them *Anadonta marginata* and *Alasmidonta undulata*; both are now in the latter genus) are found in the Erie Canal, the former being especially numerous and large with a fine nacre.

Monday, 13 July: Most of this long entry is taken up with colors and other visible characteristics of stars, which Eights considers a subject neglected by poets and other imaginative writers. Clearly, he knew his stars, a matter facilitated by the absence of urban lights and the clearness of the sky in his time. Welcome showers occurred during the evening and night.

Tuesday, 14 July: Lacewings are now plentiful, many of them perishing when they blow into streams, where they are eaten by fishes. Among benefactors of the human race, their larvae destroy great numbers of aphids. Blackberries are now ripe. Plants now in bloom include: wild indigo, *Baptisia tinctoria*, “every where through the woods along the pine

plains” (“In strong decoctions it is often used as a wash, or in fomentations for ulcers of any kind, particularly for those of a foul nature”); the orchid, downy rattlesnake-plantain, *Goodyera pubescens* (“The bruised leaves of this plant are applied by the Indians to sores, and by empirics in a decoction it is given for scrofula”); white and round-leaved orchids “are finely in bloom”; succory or chicory, *Cichorium intybus* — “though very common in meadows and old fields, is not indigenous to this country” ...its “fine large blue flowers make quite a fine appearance when in full bloom”; his creeper, now Virginia creeper or woodbine, *Parthenocissus quinquefolia*, “in sunny exposures on the side of rocky ravines”; American water plantain, *Alisma plantago-aquatica* (“pools and ditches about the meadows”); yellow or Canada lily, *Lilium canadense*, “makes a most superb show in the low meadows and in the light woods...I frequently counted from ten to sixteen flowers on a single plant”; *Pyrola umbellata* (now genus *Chimaphila*, prince’s pine or Pipsissiwa), “This is the Pipsissiway of the Indians, and has been for some time a very popular medicine throughout Europe and the United States, for the cure of various diseases”; Indian pipe or ghost flower, *Monotropa uniflora*, “is beautifully in flower in the pine woods” (“This is a very singular plant, entirely of an ivory-white colour. It is used by Indians and empirics [!] as a lotion for inflammations of the eye”).⁴⁵ [End of Part 1.]

Wednesday, 15 July: “To-day a fine specimen of the Black Snake...measuring nearly five feet in length, was shot from the horizontal branch of an Apple tree upon which he was stretched, attentively watching a circular opening in the trunk above, into which some small bird had constructed its nest. A number of birds were hovering about him in full cry, not however attracted by its fascinating powers, but anxiously endeavoring to drive it from its dangerous approximation to their young.” Whortleberries are hawked along streets. “Berries of all kinds are very abundant this season, and whenever such is the case, it is generally indicative of great severity of the approaching winter; however, there are some well known exceptions to this rule.”⁴⁶

Thursday, 16th July: Cedar birds (waxwings) have become quite common: "flying about our gardens, generally in pairs, or along the eaves [!] of our dwellings. These birds, like most other beautiful plumaged birds, are by no means musical." There are notes on several species of riverbank or freshwater snails: He mentions two species of what he calls *Lymnaea*, one of which is common in the pine plains, a species each of *Paludina* and *Helix*. "The American Locust, which appears annually, are now to be seen emerging from the ground, they are not very common, I have only seen four specimens. This species of *Tettigonia* differs very essentially in its colour and size from the famous seventeen year Locust."⁴⁷

Friday, 17 July: Various species of long-horned beetles (he calls them Goat Horns and refers one of them to the genus *Cerambyx*) are now emerging in the adult state from trees of the forest. They also live in logs used for building, often doing damage. No wood is too hard for the larvae to eat their way through, although one might wish more evidence in his second-hand tale that a species in England has larvae that can chew their way out through lead sheeting one-sixth inch in thickness! The following plants are in bloom: maidenhair fern, *Adiantum pedatum* (not a flowering plant, of course), "a very delicate and most beautiful fern and greatly sought after by foreigners on that account alone" ("Its properties are pectoral and expectoral, and it is stated that the Cherokee Indians use a strong decoction of it for the cure of Agues, &c."). Other plants in bloom: agrimony, "a very mild astringent...much used in coughs and complaints of the bowels"; his American hemlock, "a well known poisonous and medicinal plant, growing near streams and swamps; in meadows, and on the road sides, quite common."⁴⁸

Saturday, 18 July: "Whoever has occasion to walk out a short distance beyond the boundaries of our city, during hours of day-light, will have his attention not unfrequently attracted by a pair of black beetles, industriously employed in rolling along a round ball of earth much larger than both of them put together. This is the *Ateuchus pilularius* of authors, and the examples

of extraordinary industry that these insects exhibit in depositing their eggs, is worthy of admiration. After having constructed this pellet, into which the female has carefully placed her eggs, they, with unwearied industry, and by their united efforts commence rolling it along over the surface of the ground, through declivities and over elevations, until they succeed in placing it in a cell which they had previously completed for its reception. These cells are dug with prodigious labor in the hard earth, nearly three feet in depth, and the distance from the place where these balls are composed is sometimes almost incredible."⁴⁹

Monday, 20 July: "Any person wishing to obtain the skeletons of the smaller animals in a beautiful state of preservation may readily do so by first besmearing the carcase all over with honey or any saccharine matter, and then burying it for a few days in a common ant hill: he will be sure to find it perfectly denuded of the flesh, with the ligaments and cartilages alone untouched. I have before me several fine specimens which have been thus prepared. In order to have them in a natural attitude I had previously placed them in the desired position with wires, on small squares of shingle." Various species of snails, two of the genus *Helix* and one perhaps of the genus *Planorbis*, are noted.

Tuesday, 21 July: Larvae of insects that lay eggs in standing water are now commonly seen. He alleges great benefits from their existence in water where, by "abstracting all the unwholesome properties from the water they by that means preserve it pure and free from the marsh miasmata which would otherwise exhale from it. This fact may easily be determined by filling two vessels one with the water containing them and the other without, the latter will in a few days become impure and give out a very unpleasant odor." Two species of lobelia are now in flower: "the delicate little *L. Kalunii* of Linn: along the rocky shores of the river, and the *L. claytoniana* of Mich: all over the edges of woods, bearing a raceme well filled with beautiful pale blue flowers." Asters begin to flower, the first being what he called *Aster conyzoides* Willd. Two species of dogbane, his *Apocynum hypericifolium* and *pubescens*, are

noted in flower "in various places about the pine plains." Several unnamed species of milkweed, *Asclepias*, are noted: "The silky down [he alleges] attached to the seeds of these last plants can be wove [!] into cloths similar to that made by a mixture of silk and cotton. Vid. Silliman's Journal for the last year." The curious dodder, *Cuscuta gronovii*, "is now in flower along the wet meadows. — This is a...parasitic plant, extracting its nutriment from the various plants around which it twines." False gromwell, *Oenosmodium molle* (now a rare plant), "is just coming into bloom on the sandy hills along the plains"; beech-drops, *Epifagus virginiana*, "on hills under the shadow of the trees; quite common in some places."⁵⁰

Wednesday, 22 July: "Various species of the Dragon Flies now every where abound in marshy places and still waters. You can scarcely approach a stagnant pool, without discovering them wheeling over the water, watching for other insects whose similar instinct, may lead to like situations for food. Many a desperate conflict ensues, should any of its own species approach, nor does it terminate until one is obliged to relinquish the field to the superior prowess of the other. These insects seize and devour their prey while on the wing, and the brief space of time in which they will secure, cast off the wings, and extract the contents of their bodies, excites surprise in the beholder. In both the larva, and pupa state, they are inhabitants of the water, where they prey most[.] Their heads for this purpose are armed with powerful jaws, which they artfully conceal beneath a mask. Rapaciously preying upon all the aquatic insects that come in their way. When an unsuspecting victim approaches they instantaneously cast off the mask, fix upon it with their jaws, and devour it at their leisure. Having arrived at the perfect state, they differ from most other insects, by becoming more sanguinary and voracious than before."⁵¹

Thursday, 23 July: An interesting, if mainly second hand, account of one of the burying or sexton beetles (he uses the generic name *Necrophagus*, but see *Nicrophorus*, family Silphidae). He assumes that his specimens had recently been burying a dead body of some sort

(a mouse or frog, for example), in which they would have previously deposited eggs.

Friday, 24 July: He finds a lacewing, "very delicate and exceedingly beautiful...of an entire green colour, and having very conspicuous large golden eyes," now common about fruit trees. They seek a place to deposit their eggs, "among the most appropriate food for their young. I am sorry to add, that upon close acquaintance, the whole effect of their fine appearance is completely destroyed, by the strong, disgusting odour, which exhales from them, particularly on being handled." "Pleurisy Root (*Asclepias tuberosa*, Linn:) is now beautifully in bloom all over the Pine Plains. It is a very ornamental plant and richly deserves to be cultivated....It contains many valuable properties as a medicine, and has frequently given great relief in diseases of the chest." Meteors were common in the nighttime sky.⁵²

Saturday, 25 July: Although fossils "are not frequently found in the slaty grauwacke of this vicinity, they nevertheless do occasionally occur." This day he had found, from neighboring ravines, specimens of this rock with fossils of Spirifera, Producta, Terebratula, an Orthoceratite and a Trilobite, "all perfectly identical with those most commonly found in the transition limestones, whose natural position is immediately in connection with this grauwacke, above." *Habernaria finbriata* "is now beautifully in bloom in the light swamp woods; this is a very beautiful plant exhibiting a densely covered spike of blue flowers. The *H. ciliaris*...is now also in bloom; this plant beautifully ornaments the light woods on the Pine Plains, and might be introduced, and prove a great acquisition to our gardens with its splendid spikes of rich orange flowers." Today he accounted "the commencement of the Dog Days."⁵³

Monday, 27 July: "To-day whilst walking along the shore of the river, I saw several instances of the common Sturgeon, springing for several feet into the air and falling with a great splash upon its surface. Various have been the conjectures as to the mode in which they accomplish the wonderful feat of ability, but I have no recollection of ever seeing an explanation on which any reliance can be placed. Some

state that when under full way they suddenly strike their cartilaginous nose against the bottom, and thus bound up into the air, others, that when near the surface and swiftly pursuing their course, by turning on their side and slightly elevating their head they are easily enabled to glide out of their native element, but I was assured to-day by an individual who follows the taking of fish as a business, that it is often done when the animal is not under any considerable speed but comparatively, when at rest, by rolling over on the side and bending the posterior portion of the body under until the tail is brought nearly in contact with the head, then by a quick and powerful effort of its strong muscles, without difficulty it accomplishes the desired act."

Tuesday, 28 July: The tiger swallowtail butterfly is now common. Hard-hack, *Spiraea tomentosa*, is coming into flower: "It grows all over the plains. It is recommended by good authorities as an excellent astringent and tonic." A goldenrod (he calls it *Solidago canadensis*) has just commenced flowering. "The Lions-foot...is just blooming, this plant is a popular remedy for the bite of the rattle-snake, all over the United States. — It is used as a poultice applied to the wound." False foxglove, his *Gerardia flava*, is "a very showy plant and richly deserves cultivation, the flowers are very large and of a bright yellow color." Water-Target's oval leaves may be seen floating on the surface of ponds. Virgin's bower, *Clematis virginiana*, "is a very pretty vine and forms a very ornamental covering for summer houses, not only when in flower, but also in seed, at which time, it is clothed with long silken hairs": "It is a corrosive poison when fresh and taken internally. The leaf and flowers are so acrid that if applied to the skin, they readily form blisters." Small spear-wort, his *Ranunculus flammula*, "is now in full bloom in moist places, it is considered a powerful and speedy emetic." *Gaura biennis* "is a very showy plant now in flower along the sides of ditches, and deserves cultivation in consequence of the beautiful spike of rose colored flowers which it bears. It is frequently mistaken for the *Epilobium spicatum*, which it much resembles." Albany beech-drops (a com-

mon name no longer used), *Pterospora andromedea*, "is only found in the state of New York, and was first discovered by Dr. Edwin James in the vicinity of this city, whence it derived its peculiar name. Dead flies are frequently found sticking to the stems, being retained by a gummy substance which exudes from it in great profusion." Smooth sumac, *Rhus glabra*, is now in full bloom.⁵⁴

Wednesday, 29 July: The whip-poor-will "has again commenced its peculiar notes the sound of which were [!] easily to be recognized this evening from the skirts of a neighboring forest. This bird is not unfrequently mistaken for the Night-Hawk, though I cannot conceive how Cooper the celebrated American Novelist could confound it with a quadruped of the west — the 'Wish-ton-wish' of the Indians." Eights says that Cooper in one place equates "Wish-ton-wish" with the rodent called prairie dog: clearly in defiance of his statement elsewhere that "Wish-ton-wish" is a bird. He then, Eights says, confounds confusion by saying that whip-poor-wills and nighthawks are the same species of bird. As to the restriction of Wish-ton-wish to the prairie dog, I do not know; however, it was a very long while before American ornithologists got nighthawks and whip-poor-wills untangled. Eights's insistence upon anatomical characters hardly visible except with a specimen in the hand does not really help much: The birds can be much more reliably separated by their behaviors and sounds. The notice of recrudescence of vocalization in the whip-poor-will after a period of quiescence is well taken.

Thursday, 30 July: The entry for this day is a morality lesson from the spider, species not named. Having, in early May, confined an adult female spider in a jar, whose mouth he covered with gauze, he watched her persistent "instinctive" efforts to climb its smooth walls. He found that she ultimately learned "to elevate her abdomen to its greatest extent, along one of the sides to which she firmly secured a small mass of web, then passing to the opposite side, by the same process, succeeded in attaching a line, and after having taughened [!] its slack, she soon mounted the first step of the ladder in triumph, in this manner by continuing her labours from

day to day she finally succeeded in reaching the top and then, on the under surface of the gauze, she soon constructed a resting place." She "subsequently constructed a portion of her customary geometrical web." She regularly ate her three flies per day (ignoring them if more were given) — he called attention to what he conceived as a prodigious quantity of food required to support the entire population of spiders and other fly-eating animals — neatly inverting the equation, however, to prove how great the number of flies is.

Friday, 31 July: Clusters of spots have been for the last few weeks visible on the surface of the sun; he calculated that a spot required 13.5 days to pass over the visible face of the sun — a rotation period of 27 days for the sun. Spots "have been visible on the sun's disk for some considerable time and I cannot discover that any atmospheric phenomenon can be attributed to them."

Saturday, 1 August: Our essayist perceives that nature gradually takes on a more sober hue, "plainly indicative, to the most common observer, that the decline of the year is rapidly approaching. Peaches, Pears, Plumbs and Apples, now successively ripen into their most delicious kinds, and many of the herbaceous plants, yield us their refreshing productions: some of which, being most admirably adapted, by a wise providence, to nourish and sustain us through the severities of the coming winter." Plants observed in flower today were: Dwarf snakeroot or whorled milkwort, *Polygala verticillata* ("a very delicate little plant, quite common all over, along the edges of light woods") and purple milkwort, now *P. sanguinea* ("in like situations"). Also in flower: wild senna, *Cassia marilandica*, now *hebecarpa* — "a beautiful herbaceous plant, and richly deserves cultivating, both on account of its appearance, and also for its admirable properties as a medicine. It is a simple cathartic, and although a little inferior to the East India Senna, it is considered infinitely superior to that from Egypt. A decoction from an ounce of the leaves and pods is considered an efficient dose: September is the proper time for collecting it." The small species of senna, presumably today's *C. Chamaecrista*, or par-

tridge-pea "is also in flower along the shores of the river; this plant exhibits some considerable sensibility on being touched by the hand." Also in flower: pickerel-weed, *Pontederia cordata* (shores of river, other wet places); elecampane or horseheal, *Inula helenium*: "it is esteemed of some value for a variety of diseases"; marsh cud-weed or wartwort, *Gnaphalium uliginosum*: "this plant is mentioned as a good substitute for tobacco in smoking and is also used for various diseases, being anodyne and pectoral in its nature"; hemp-nettle, *Galeopsis tetrahit*, "in old fields and other waste places"; two species of *Hypericum* are in profuse bloom.⁵⁵

Monday, 3 August: An essay brought on by a friend who wondered why one of his two canaries was infested with vermin, while the other remained free from their annoyance. Eights found that the claws of the mite-infested bird had been injured. "It is a well known fact among naturalists, that the claws of Birds are used in the capacity of combs to free their plumae from the noxious vermin which infest them." "Birds which have short legs are mostly infested by insects."

Tuesday, 4 August: "To-day I amused myself by irritating with the twig from a tree, a small species of sandsnake which I found crawling through a marshy piece of ground, and was pleased to see the threatening attitude it assumed for defense, coiling itself up as if in the act of springing. When in this position, the whole body seemed inflated to almost double its usual size, and the scales, which had hitherto been so smooth, now became rough in appearance, and nearly erect." The entry, maddeningly enough, lacks enough information to enable one to be positive about the snake's identity (it may have been a hog-nosed snake). He goes from this rather imprecise particular to a general account of serpentine anatomy and "springing" ability that becomes quite imprecise.

Wednesday, 5 August: He received a piece of limestone from the vicinity of Glens Falls that was rich in remains of fossil crinoids of a species of *Pentacrinus*. He describes their commonness as fossils, their rarity in nature, although they had recently been found still living in marine habitats — some, he alleges, are

of the same genus as those in his slab of limestone.

Thursday, 6 August: "This morning I caught two specimens of the Bot-fly, (*Oestrus Equi*, of authors) during a short excursion in the country; they are much behind their usual time of appearance, which is the month of June. As there appears to be some uncertainty as to the manner in which this gad-fly introduces her larva into the stomach of the Horse, it may not be improper here to mention it. During the month of May the female fly having selected an object, suitable for her purpose, immediately proceeds to attach her eggs to the hairs of the animal, carefully avoiding such places as it is unable to reach with its tongue; the number of eggs is generally about four hundred, which are made to adhere to the hair, by a glutinous substance, with which they are covered. In a few days they become hatched into the larva state by the heat of the sun, and when the animal licks the spot with its moist tongue, they immediately adhere, and are so conveyed into the stomach, where they generally remain about three or four weeks, before they pass off, and become the perfect fly. The situations which the fly prefers to deposit her eggs, are the inside of the knee, the sides, and back part of the shoulders."⁵⁶

Friday, 7 August: "Within the last few days grass-hoppers have become exceedingly numerous, a warm, sunny day will exhibit them to a spectator by thousands, as he strolls leisurely along, through the fields and light woods. Grass hoppers are always much more numerous than the majority of other insects, and this is a wise provision of Nature, for they afford an abundance of food for nearly the whole of the feathered race, few indeed, refuse them, if we except the rapacious birds of prey. Poultry are very fond of them, and they become very fat by using them as food. Early in the morning and at evening, they become the most noisy." These sounds, he points out, "are not produced by the mouth, for no insects make use of their mouth to produce their songs, but by applying their posterior shank to the thigh, and then rubbing them briskly against the elytra, alternately right and left." Also "beautifully in bloom,"

Polypodium vulgare ("frequently made use of in some parts of our country, for violent coughs; it is pectoral and emulcent, and is sometimes used as a vermifuge"); his *Polypodium phegopteris* (now *Thelypteris phegopteris*, long beech-fern) "is also common, and now in flower."⁵⁷

Saturday, 8 August: Unusual numbers of bats are now seen, "flitting about during the course of the evening, until a very late hour; this circumstance is indicative of fine weather on the approaching morrow, and it is seldom known to fail. When, upon the contrary, they appear uneasy in their flight, and repeatedly utter their shrill cry, disappearing early in the evening, and retiring to their caves and cells, it is as surely a prognostic of foul weather. I very much doubt, however, that the phenomena of the atmosphere have any direct influence upon the motions of these singular animals, but that it can more properly be attributed to the fact, that the insects upon which they feed, being more sensible to the coming changes in the air, seldom leave their places of repose, consequently the Bats are unable to obtain their usual quantity of food and soon give up their fruitless attempts."

Monday, 10 August: The assassin bug, *Reduvius*, "is now very common in our gardens, preying upon whatever insects it can obtain, perforating them with its acute rostrum, and soon exhausting them of their fluids. It in its turn, again yields an ample nourishment to the more artful spiders." "These insects are very nearly allied to the common bed-bug...of our dwellings, and an odour equally disagreeable, exudes from them upon being handled, and they also make a puncture in the flesh which is extremely painful and which leaves a numbness of the parts, continuing for some time after."

Tuesday, 11 August: "The season has now arrived in which spiders make their aerial excursions, but for what purpose, it has not been determined; though many suppose their object is, to seek a more favorable situation to procure their food. Their long lines of gossamer [!] web may now, not unfrequently be seen on calm evenings, gently undulating in the light, balmy airs from the south. To-day I had an opportunity of witnessing one of the largest

species, very nearly allied to the *Arania diadema*, of Europe, sailing most gracefully along, my path: by some deviation of the end of the line, it at length caught the angle of an out-house, which the spider immediately detected, and by a rapid movement along the line, soon gained the building: here after a short time, as if not satisfied with the situation, he again made active preparation to resume his journey. He, probably, deeming that his gossamer was not sufficiently buoyant to bear him above the common obstacles, began immediately to lengthen the line. This was soon done, by elevating the abdomen in the air, and then rapidly spinning out the web to the necessary length. He now cast off, and with great activity ran till nearly to its centre, and away he went again, as gracefully as before. It has been generally supposed that the spiders which take these aerial excursions are confined to but few species. On the contrary, I think that all those which are termed geometers, are subject to these flights."⁵⁸

Wednesday, 12 August: "The common small fresh water Lobster, a species of the genera [!] *Astacus* of Leach, and probably the *A. Bartouii* of American Authors, is by no means uncommon now, in some of the brooks, and other small streams about the city, and it is curious to see with what activity they spring backwards into their holes, beneath the loose stones, the moment they are approached by any one. Their food appears to be of an animal nature, for I have not unfrequently surprised several of them at once, feeding upon the carcasses of the small fish."⁵⁹

Thursday, 13 August: "A prodigious number of the young river herring may be observed skipping above the surface of the stream, in calm weather, during the changing of the tides. As their natural instinct leads them again to seek those streams, where they were originally spawned, we need not entertain apprehensions but that an abundant supply will reward the toils of our fishermen during the ensuing season." Plants now in full bloom: bugle weed, *Lycopus virginianus*, and water horehound, *L. europaeus* — "in moist situations, through meadows and old fields. These are not showy plants, but they are

esteemed of great value, on account of their medicinal virtues. The former species is much used throughout the western states by consumptive persons, to lessen the frequency of the pulse, and allay the irritation and cough. Its action is similar to that of *Digitalis*, without producing its bad effects, and consequently, is considered by some authors, superior to it. It is also recommended as an excellent substitute for all narcotics." Also in flower: Indian tobacco, *Lobelia inflata*, "a powerfully medicinal plant, and much used by empirics for the cure of almost all diseases known; but it is a dangerous medicine in the hands of the ignorant, and should be used with the utmost caution, or it speedily produces death"; cardinal flower, *L. cardinalis*, "one of the most splendid North American plants" ("A decoction of the root is used by some Indian tribes, as a vermifuge, and also for the cure of Syphilis").⁶⁰

Friday, 14 August: The day's entry concerns a fossil, in "Carboniferous limestones from the Helderberg mountains, a few miles to the westward of the city," of the genus *Cyathophyllyum*. The fossils are the remains of habitations of a colonial marine animal. He then proceeds to reconstruct the life history as if the species were still alive.⁶¹

Saturday, 15 August: A lesson in preemptive entomology. "The *Aegeria exitosa* of Say is now occasionally met with. This is that beautiful winged insect, so destructive to our peach trees, in this section of our country. The male and female of which differ so much in their color and markings, that it requires a nice discernment to identify them, as belonging to the same species. They emerge the perfect insect, about the latter part of July and the beginning of August...and as this is the time in which they deposit their egg, it becomes necessary to the cultivators of the peach, to bestow some little attention, in destroying them. Their eggs are deposited near the surface of the ground, from whence the larva, upon being hatched, soon penetrate into the roots of the tree, and produce their devastating effects." He recommends digging soil away from the base of the tree with a trowel and picking out the larvae. They can be more effectively controlled by shielding the

trunk from the eggs with a close-fitting wrap whose lower edge is covered with soil: "should this wrapper contain some noxious substance, like tobacco leaves, so much the more effectual will be the attempt."⁶²

Monday, 17 August: "Fire flies are now no longer seen, having disappeared when the chill evenings commenced. When these little insects appear in the earlier parts of summer, we may be sure that the regular heats of the year have set in, for they are totally unable to endure the slightest degree of cold; and when it approaches, they soon perish and are seen no more." Plants now in flower: nightshade, the introduced *Solanum dulcamara* ("A decoction of this plant is very beneficial in all cutaneous diseases, and is said to produce all the good effects of sulphur, antimony, and mercury, in many others. One ounce of the decoction is recommended as a dose, to be given three times a day"); various species of *Lespedeza* (none identified); *Martynia proboscidea*, an escaped plant, in bloom along roadsides in several places ("it has recently been introduced in our gardens, in consequence of the fruit, when young, yielding good pickles").⁶³

Tuesday, 18 August: Yellow and white melilots, or sweet clovers, are in flower (they make excellent, sweet-scented hay, are superior to other clovers as cattle food and their "flowers and leaves are pectoral and emollient, and are used for leucorrhoea [!], coughs, &c."); wild marjoram, *Origanum vulgare* ("as a tea it is used for coughs, and asthma, and for chronic rheumatism, and palsy, in lotions and fumigations; the flowers and tops also yield a purple dye"); the "fine [five] flowered Gentian," *Gentiana quinqueflora*: "occasionally found, and well worthy of being cultivated in our gardens; the whole plant is intensely bitter." Also: boneset or thoroughwort — "*Eupatorium perfoliatum*...in swampy grounds all over; the excellent medicinal properties of this plant are too well known throughout our country to need a description. It is a powerful remedy for fevers among some of the Indian tribes, and it is stated, that a cold infusion speedily restores the tone of the stomach, after a fit of drunkenness. The *E. purpureum* is also in flower in moist open places; it some-

times attains the height of twelve feet, and possesses the same properties as the former species." In the course of the day, there was a dramatic shift in winds, from warm to cold and from southeast to northwest.⁶⁴

Wednesday, 19 August: A plea for recording comparative data on the coincidence of the aurora borealis and atmospheric phenomena: "On referring to my notes of former years, I find that similar clouds, and light cool winds, from the quarter whence these interesting phenomena occur, most generally accompany them, and the weather nearly always, for some hours preceding them, is cool and clear."⁶⁵

Thursday, 20 August: Swallows (species not named) have, for several days past, been seen congregated on church spires and tops of tall buildings. He opines: "little doubts can be entertained, but that their objects are preparatory to a migration to the more genial regions of the south." The general course of flights has been southerly; he thinks that they fly not in continuous and sudden flights, but move gradually, feeding and resting as they go, "the swallows seen on the spires in the evening, are not the same as those which occupied them on the preceding day."

Friday, 21st August: Among the curious geological phenomena exhibited by the Marly Clay found in the vicinity of Albany are the "singular vegetable organic remains which are embraced in some of its strata." The remains are "invariably...found, spread out in a horizontal position, in a thin seam of fine bluish sand, about twenty feet beneath the surface of the ground. They are of an elongated and cordate form, and are supported by a petiole, about two thirds the length of the leaf; that [the length] of the leaf itself, being about one fourth of an inch. They appear as if merely dried by the sun, without pressure.... This very singular fact will give to this extensive Marly-clay formation, a much more recent origin than has ever been supposed."⁶⁶

Saturday, 22 August: "Meteors and falling stars have been quite common for the last few weeks, and this is the month in which it is generally believed that they most commonly occur, and they were very numerous to-night....partic-

ular observations of these phenomena, should be carefully registered, for some time previous and also after the periodical time assigned to its appearance." Worm-seed (presumably *Chenopodium ambrosioides* L., Mexican tea, an introduced plant) "is now quite common in flower; it is sometimes cultivated for its medicinal virtues, being a powerful vermifuge; the seeds and their essential oil, are the most efficacious; eight or ten drops of the latter, on sugar, morning and evening, are considered a suitable dose for a child, when it speedily expels the worms."⁶⁷

Monday, 24 August: "The antipathy which the common Honey Bee exhibits to some particular individuals, and not to others, is truly surprising....I saw an individual to-day, who had received several severe punctures, from their envenomed stings, in consequence of approaching too near their hives, whilst other persons were standing equally near, who escaped perfectly unmolested. He informed me that they always exhibited those unfriendly feelings towards him....The most efficacious remedy for the sting of bees, as well as for the bites of musquetoës, is the application of the aqua ammoniac: it gives relief almost instantaneously, and particularly so should it contain a few additional drops of the tincture of opium."

Tuesday, 25 August: "It has been observed, that 'sounds do not always give us pleasure according to their sweetness and melody;' nor do harsh sounds always displease; for what can be more grating to the ear than the noise produced by the common field Cricket,...and where is the individual that does not feel pleasure at the sound, particularly during the season for harvesting? — it is, no doubt, from sympathy, for whenever we hear its brisk chirup, we invariably associate with it the delights of the summer months....Those persons who are fond of the melody, may easily cultivate them. By confining some of them in a paper cage and placing it in the sun, they will thrive exceedingly well, provided they are fed continually with wet grass, and will sing so loud as to make it unpleasant to remain in the same room where they are kept. These sounds are produced by the insect elevating its elytra, almost vertically,

and then rubbing them briskly together."⁶⁸

Wednesday, 26 August: "A very beautiful species of *Clytus*, of Fabricius, are [!] now making their appearance in great numbers, and may commonly be seen, devouring the sweets from the fine yellow flowers of the Golden rod, (*Solidago*) and some other plants with the same colored flower. They can at once be determined by the singular, bright yellow, zig-zag lines across their elytra. This is the insect which proves so fatal to our locust trees, destroying them when in a larva state, by feeding on the wood, and perforating it in every direction." Since this is their egg-laying time, trunks of trees should be "freely washed with some solution that may either destroy the eggs already laid, and also prevent them from alighting on them."⁶⁹

Thursday, 27 August: "A fine specimen of the common Rail was shot to-day, in a watery situation, in the neighborhood of our city. This bird cannot, with strict propriety, be considered a native of this vicinity, although an occasional straggler is sometimes found. In the same parallel of latitude to the west, however, they are quite common." Plants in bloom: "In wet, swampy places, the Snake-head, *Chelone glabra* — "This plant is used in many diseases, principally, however, the leaves, which are powerfully bitter; they are strongly tonic, cathartic, and hepatic, and most commonly used for affections of the liver, in full doses, when it purges the bile, and cleanses the system of the morbid or superfluous bile; by that means restoring the natural color of the skin. The Indians use a strong decoction for eruptive diseases." Also, in wet places, "Parnassus Grass [now *Parnassia glauca*] — "a neat and beautiful plant, and young Botanists are very apt to be puzzled in reading it out, frequently mistaking its abortive stamens [actually, staminodea], for the perfect ones." Likewise in bloom: "Blooming spurge (*Euphorbia corollata* Linn):...considered as equivalent to the ipecac of commerce; the root alone is used, ten grains of which are recommended as a dose, when it proves cathartic; in larger doses, about twenty grains, it proves a safe and valuable emetic. In small doses, it often acts as a diaphoretic, and is preferred to ipecac, in conse-

quence of having no unpleasant taste; nor does it excite pains or spasms." And another favorite of the herbalists: *Lobelia syphilitica* — "it bears a spike of large blue flowers...the extract has been used for dropsy, in doses from five to twenty grains. Some Indian tribes use it for the cure of syphilis."⁷⁰

Friday, 28 August: Except for a few stragglers, swallows "have taken their departure for the more genial climates of the south." "The breast of man is susceptible of the same unvarying changes as those with which the great Author of Nature has characterized the other portion of his works." So, in spring, we thrill to sprightly tints of the vegetation, the unwearied cheerfulness of bird song. But..."ere long, this passes away, and the scene becomes changed: the flowers vary their tints for a more sober hue, then droop and fade away — the birds cease their melody, tribe after tribe disappear from our sight, and with these, it is the nature of mankind, to become once more sad and contemplative."

Friday, 29 August: *Spectrum femoratum* of Say is now quite common. "They are destitute of wings, and their greatest length is about five inches; from the regular and steady manner in which they traverse, from one part of a person's dress to the other, they have received from the farmers, the appellation of the Yard stick, or measuring stick....I could not discover that they were productive of any great evil to vegetation."⁷¹

Monday, 31 August: The large yellow butterfly (the tiger swallowtail) "is now becoming quite rare, besides those of several other genera. This beautiful tribe of insects is fitted to exhibit their gaudily adorned plumage but for a brief space of time, being very sensibly affected by the slightest changes of the atmosphere." Maryland yellowthroats (Eights obviously was not a keen ornithologist, considering the few birds he names) "have at length disappeared from our woods, and taken their annual journey to the more genial regions of the south; their singular, though pleasing twitter can no longer be heard from every bramble bush as we walk along."

With this, the end of a month and the begin-

ning of another — the last of the series entitled "The Naturalist's Every Day Book." For Eights, both end and beginning must have its bit of philosophy.⁷²

Tuesday 1 September: "With this month commences the fall season of the year, when all our herbaceous plants ripen, previous to their decay, when many of our forest trees, assume those magnificent hues, which so peculiarly characterize the decline of the year." Still, it is a month of flowers that have come into bloom: monkey-flower, "in watery places, on the Helderberg mountains. This plant is rather showy, bearing large pale blue flowers; but it is not known to possess any medicinal virtue. It seems to thrive best in limestone regions, and this is its nearest locality to this city." Also: chaff-seed, "a few specimens...met with in some few situations about the Pine Plains...not commonly found in this region"; false foxglove makes "a showy appearance with its large yellow flowers"; lousewort is "now finely in flower, in moist places about"; horse balm, "a handsome estival plant, and now all over in bloom, in rich and shady soils, through the woods; it has received the appellation of heal-all from the circumstance of its popular use for almost all diseases, both internally and in application externally, for the cure of ulcers of every kind." Also seen: trailing bush-clover ("this delicate plant is now frequently met with, finely in bloom, in the sandy woods"); giant ragweed, "along the banks of the river"; common ragweed, "in old fields"; and in "the small streams and pools about are now seen the *Potamogeton perfoliatum*, of Linn: and also the *Typha latifolia*, of Linn."⁷³

Wednesday, "3" [=2!] September: "Some weeks since I obtained from the Hudson River...several living specimens of the common spawn eater: (*Clupea Hudsonia*, of Clinton.) After keeping them for a few hours, in a jar of pure water, they gradually perished, one after the other; and in doing so, I remarked that they invariably turned on their sides, with their heads and tails beneath, forming quite a regular curve; they were then thrown away, in a situation where they ever since remained....On examining them to-day, I discovered that in

drying, they had assumed the same distorted postures as those occupied by many of the fossil fishes, which have so commonly been found, in several of the rock strata, in various parts of the world; and more particularly bore a striking resemblance in form, to some well characterized fossil specimens, belonging to the same genus, now in the Museum of the Albany Institute. These specimens were brought from some parts of Germany....This circumstance would certainly be a strong inducement to a geologist, to conclude that the fossil fish, had perished in a similar manner, and not by any powerful convulsion, as many now believe."⁷⁴

Thursday, 3 September: "On the Patroon's creek, a short distance above the stone dam which has very recently been constructed, is a curious deposit of calcarious tufa both massive, and in a stalactite form, firmly adhering to the face of the indurated, coarse conglomerate, which supports the extensive beds of marly clay, every where about our city. This tufa is deposited from water, which, after percolating through the loose porous mass of sand and clay, which covers the slope of the hill, arrives at the firm rock, the upper surface of which has become perfectly compact. By the same deposit of carbonate of lime, it is soon again discharged over its sides, in constant and copious drops. This constant falling has obtained for the whole formation the name of the 'Dripping Well.' Some of the hardy vegetables are, not unfrequently, found embraced in this tufa, still containing their original forms, but not their natures, having had their substance gradually infused in the interstices, until they have become perfectly changed."

Friday, 4 September: "The Spotted Slug, (*Limax maculata*, Nob:) is now very common in the garden...; many of them being accompanied by their eggs, whilst others are quite small, being undoubtedly the young. But very little is known of the peculiar habits of these small animals, although in various works on horticulture I have repeatedly seen instructions given for their extermination; but for what particular purpose has never been stated. Our garden has abounded with this species for many years back, and from a close inspection of their

habits, I have never been able to discover that they were ever the cause of an injury to the herbs, shrubs, or fruit trees. The eggs are orbicular, pellucid, and nearly a line in diameter, resembling very much in appearance those of the common white lipped snail, (*Helix albolabris*, of Say.)" And "Halley's Comet was discovered in this city, for the first time, this morning, situated above the horns of Taurus. It presents the appearance of an indistinct nebula. It was noticed at Yale College, by Professor Olmsted, on the 31st of August."⁷⁵

Saturday, 5 September: "The female of a species of Moth is now depositing her eggs in some considerable numbers, on the stems of many of our fruit trees; and as they do infinite damage to them on the ensuing spring and summer, it would be advisable to gardeners, and other cultivators of fruit, to remove them as fast as they can be discovered, as the eggs of this species are much more tender in their nature, than those of many of the tribe, in order to preserve them safe through the severities of the approaching winter, the mother exercises an instinct which is truly admirable, taking the wise precaution of covering them with a thick mantle of hair, plucked from her own body, which, being a non-conductor, and equally impervious to wet and cold, is most suitably adapted to afford them the necessary protection, until the spring arrives." And: "A most beautiful display of the Aurora Borealis was exhibited this evening, and although the moon was nearly full, it was exceedingly brilliant: some of the rays were seen reaching the zenith."⁷⁶

Monday, 7 September: "It is a curious fact and one which is not generally known, save to naturalists, that such insects as afford many broods of young in a season, are chiefly those which pass through the severities of the winter in the ova, or egg state. It is a wise provision of nature, and easily admits of a solution. Such females as are the last to deposit their eggs, are constrained to do it when the season has so far advanced, and the temperature of the atmosphere so low, that there is not a sufficiency of heat remaining to fully accomplish the desired effect, consequently they are destined to remain

through the winter in the ova state, and only to become hatched, when the more genial heat of the spring time sets in, and then, not until the leaves of the peculiar vegetable on which they are designed to feed, are suitably developed."⁷⁷

Tuesday, 8 September: Eights visited a "marble yard" in the city and noticed very fine fossils of a species of *Lituities* in slabs of limestone brought from Vermont. Septae that divide the inner animal into chambers were distinctly visible. Since now totally extinct, nothing is known of their habits although, considering their similarity to the mollusks *Spirula* and *Nautilus*, "little doubt can be entertained but that their habits were very similar."⁷⁸

Wednesday, 9 September: "A number of flocks of our social little summer friends, the Blue-bird...were observed to-day at some considerable height in the air, pursuing a seemingly hurried flight to the south, indicative of the approach of chilly days. The first appearance of these birds, with the earliest warm days in spring, would induce us to suppose that their migrations do not extend in any great degree to the south, yet the general belief among naturalists is, that they winter in a tropical climate. The snow has scarcely left the fields when they make their appearance and may be seen perching on the posts of our fences, or on the stems of trees, anxiously watching for the insects which furnish them food." And: "The Aurora Borealis was very brilliant this evening. A splendid arch expanded the heavens elevated to some considerable degree."⁷⁹

Thursday, 10 September: "I was requested to-day to visit a situation in the suburbs of the city, where they informed me that the soil was so exceeding hard as to be almost impenetrable. On examination I discovered it to be composed of a mixture of clay and gravel, firmly united by a large quantity of Sulphuret of Iron, (Iron pyrites,) which rendered it so very tenacious, that the labourers employed in excavating, were almost unable to do so. This iron unquestionably had its origin from water percolating through the mass, highly charged with that mineral, and for some space of time. Springs containing water of that nature are not unfrequently met with in various situations in the

neighbourhood of the city." Plants in flower: Soap gentian, in bloom in "most places about our meadows" ("plant is medicinal, and when taken in large doses proves cathartic. It might be introduced in our gardens with great advantage in consequence of the large flowers which adorn it"). Also in flower: New England and common blue wood asters — the first, "most beautifully in flower along the fences through meadows...a very ornamental species...frequently cultivated. A decoction of this plant is frequently used, both internally and externally, in many eruptive diseases of the skin, and it is reported, with great success"; the second is "considered a very good aromatic nervine, and in many cases it has superceded the use of valerian." And: dodder is "occasionally seen in flower, it possesses a colouring matter which dyes a pale red, and is sometimes used in a decoction, for scrofula, and agues"; water beggar-tick is "now quite common in ditches and near ponds" (when established in fields, "it is with great difficulty exterminated"; it furnishes a rusty yellow dye for woollens).⁸⁰

Friday, 11 September: "This afternoon, whilst examining the 'Dripping Well,' previously mentioned, for land shells, it became necessary for the purpose, to disturb a considerable quantity of the large mass of a mixture of earth, marl and vegetable decomposition which had, for some time previous, been accumulating beneath, and in doing so I obtained several specimens of the *Salamandra bis-lineata*, of Green. — These animals appear to thrive much better in this situation, than in any where I had previously found them; for they were much beyond their usual size, and might easily have been mistaken for a distinct species, were it not that the lines on their backs, upon close examination, could faintly be detected."⁸¹

Saturday, 12 September: While it "has been repeatedly stated that Pike, and Pickerel are fish that will not thrive in muddy waters, but always require running streams, and lakes which abound in springs...I this morning had an opportunity of observing several fine specimens of each, which had been captured in the Erie Canal, a few miles to the north, whose waters are never clear, but always turbid; with

the exception of one or two situations in the west, where running streams have been appropriated to its use; and on referring to my notes of former years, I find, that nearly two years since, on the north side of the Mohawk River, in Saratoga County, the banks of the Canal suddenly gave way, and its waters overwhelmed a low tract of land, for some distance around. When it subsided...the inhabitants...collected in great numbers, Pike, Pickerel, Eels, and a variety of other species of fish."⁸²

Monday, 14 September: "I have before me a number of specimens of Anthracite, brought me for inspection, from the north side of the Mohawk River, near the Noses. They are accompanied by pieces of the rock in which they were found, and, also, by quartz chrystals, some of which embrace masses of the same mineral. From an examination of these specimens I had no difficulty in deciding that they were from the true transition series of rocks; a series in which Anthracite in any considerable quantities, has never yet been discovered; but, in limited portions, it is not unfrequently found, and then disseminated in such a manner, as to produce evidences to the Geologist, that extensive beds of it, can never be found in them. However, I do not wish it to be understood it is my decided opinion, that it may not be found in this series of the rocks in our State, for in some few instances, other useful minerals have been found to deviate in as great a degree, from the proper situation of the rocks which embraced them in other countries. It must therefore require a more particular investigation on the spot before it can be determined with any degree of certainty."⁸³

Tuesday, 15 September: "A beautiful Caterpillar, [of a] species of Moth, has been preying, in prodigious numbers, for the last several years, on the leaves of our common Scrub Oak...completely denuding the branches of their leaves, for miles together, along our Pine Plains, and covering them in dark clusters, as fairly to hide them from the sight. It has been stated by Entomologists, that, when insects appear in vast numbers, and commit their greatest devastation, that they are always productive of beneficial effects to the vegetation

upon which they feed, for on the ensuing season they become far more fertile than they otherwise would have been. To prove this assertion, instances have been cited from Africa, of the celebrated Locusts, which, have swept like a scourge over the land, desolating every fertile spot, and giving to the whole country the aspect of a blasted heath, yet that portion of the earth, on the following season, yielded far more profusely than it could under any other circumstances. But for my part, I cannot conceive of what great advantage it can prove to this species of Oak, to have the leaves, year after year, stripped from their branches, by these Caterpillars, as fast as they can be put forth, and by that means, rendering them objects of disgust to the sight. To-day I saw in the ditches, on the sides of the Shaker road, prodigious numbers of these Caterpillars, strewed along for several miles. They had been arrested by the severe frosts, which have appeared for the last few nights, in their passage to their winter quarters, in the ground to some depth beneath the surface."⁸⁴

Wednesday, 16 September: "The Zodiacal light is now not uncommon, during the hours of a short time previous to the Sun's rising, and I very much question, if too much importance has not been attached to this rather unusual phenomenon, by the scientific individuals who have hitherto been in the habit of speculating on it. It is my opinion that its appearance is altogether connected with some peculiar state of the atmosphere as regards its moisture, for that part of the season when they are most frequently occur, is during the month of September and October, just when our morning fogs prevail, and whenever I have observed them in the evenings, I have, almost invariably, discovered a moistness in the atmosphere, which particularly obscured the most remote objects."⁸⁵

Thursday, 17 September: "Insects whose eyes [no doubt a misprint for eggs] necessarily should remain uninjured throughout the severities of the season of winter, generally select such situations to deposit them, as are most admirably adapted to their purposes. Thus the species of *Gryllus*, and many other insects

whose eggs are of a tender nature, deposit them deep in the earth, far beneath the influence of the frost, whilst others, such as some of the Moths, with due regard to the necessary food to sustain their larva on being hatched, and which is principally young leaves, place them upon the twigs and large branches of trees, upon which they are to feed. To day on examining the fruit trees of the garden, I discovered in great numbers, clusters of the eggs of a species of *Bombyx*, firmly glued around many of the twigs, in the form of bracelets, and which the female insect had covered with a peculiar glutinous substance, in a short time becoming so perfectly indurated, that it was with the utmost difficulty they could be removed by an ordinary pen knife. As this is one of the species whose larva are hatched just as the leaves have been fairly developed in the spring, and over which they, in a short time, spread in such prodigious numbers as soon to disfigure the trees and render them a disgusting sight to the eye," it is recommended that the assiduous use of a gardener's knife will in a few hours time "completely free the trees" of them, destroying immense numbers of them in embryo. The good effects the gardener "will have ample cause to rejoice at on the ensuing season."⁸⁶

Friday, 18 September: Inconsequential comments on cool weather and spiders and the precautions taken by spiders when they walk on smooth surfaces such as a ceiling.

Saturday, 19 September: Eights saw this day a specimen of long-eared owl shot within a few miles of the city. "This bird is not unfrequently met with in the gloomy recesses of the forests, where it remains in a perfectly passive state during the hours of daylight." He had seen recently another example shot from an elm tree "in the yard of the South Dutch Church, in the city." And: "This day began with strong winds from the south east, accompanied with scuds, and towards it close thick clouds commenced accumulating in the heavens, indicative of a coming storm, probably the equinoctial" — a fair enough prediction, should a storm occur at all, considering the calendar.

Monday, 21 September: "Many insects are now passing into their winter quarters prepara-

tory to a state of hybernation; the situations which they generally select, are under stones, in holes, and in the crevices of old walls. To day in turning over stones, in search of a peculiar species, I discovered several of them, belonging to the Genus *Harpalus* of Latreille, which had already become almost inanimate from the chilliness of the weather; they were invariably in a position with their backs downward, adhering with their feet to the inferior surfaces of the stone." When warmed, they slowly regained mobility. "The great degree of cold which many insects are obliged to endure during the progress of the winter and again survive, to become animated in the spring, is truly surprising; some caterpillars have been found so frozen, that, when dropped into a glass jar, they chinked like stones...and yet in their due season perfectly revived, and passed into their perfect stage of existence." And: "The comet was distinctly visible to the naked eye, it is approaching with great rapidity."⁸⁷

Tuesday, 22 September: "To day, on visiting the Normans kill, a few rods to the west of the bridge across that stream, on the river road to the south, I obtained every variety of the lower Grauwackes. This is one of the first localities in the state for the student of Geology to make himself acquainted with the singular contortions that these rocks are subject to, for a nearly perpendicular cliff of about sixty feet in height, exhibits them in wild disorder, as if they had been raised by some mighty effort, and then thrown into one vast mass of confusion. They at this place contain thin seams of Anthracite and also some Quartz chrystals of large dimensions. The scenery about this place is extremely picturesque, and far exceeding in beauty any other spot in the vicinity of our city; the highly elevated sides of the gorge, through which the water rushes along for some distance over a noble cataract, are generally covered with the densest foliage, extending from the basin to the very summit." A magnificent display of the aurora borealis was visible in the evening.

Wednesday, 23 September: House-flies have fallen victim to the chill of evening and morning, although they still revive "in the more genial rays of the sun. This morning I beheld a

prodigious number of them strewed along in shady places, and particularly about the windows of my room, in a perfectly inactive state. In this situation, however, they seemed to yield a rich repast to many of the spiders, who seemed fully aware, that they yet retained a sufficiency of juicy fluids to suit their peculiar tastes." Finally: "The beautiful fringed Gentian...is now finely in flower along the banks of the Rail Road, and elsewhere, on the edges of light wood. This plant richly deserves cultivation, in consequence of the showy, large blue flowers which it bears."⁸⁸

Thursday, 24 September: "About four years since, I placed some tight wire ligatures around the stems of several of the scrub oaks, immediately after discovering that the caterpillars of the Bombyx [*sic*], previously mentioned, denuded them yearly of their leaves, merely for the purpose of ascertaining if their growth was not materially affected by being thus deprived of them, as fast as they could be put forth, and to day, upon examination, I had the satisfaction of determining the fact, as the ligatures, with but one exception, were but slightly impressed in the bark." The result, he thought, was due to the fact that trees, systematically deprived of their leaves, exhaust their ready food supply and thus cannot lay down layers of wood and do not increase in diameter. "It is by a knowledge of this circumstance, that the Chinese are enabled to obtain several successions of leaves from their tea plants in a season: and those that are first picked, possess most vigor, and are therefore considered the best flavored teas, and bear the highest prices."⁸⁹

Friday, 24 September: "To day I saw one of our common land Tortoises...busily employed in digging for himself a habitation in which to pass away the dreary hours of winter, in a torpid state. This reptile is very common all over our pine plains, in the summer season, and may easily be recognized from the other species, by its superior height, and also by its suddenly withdrawing itself into its shelly covering on the approach of any person, and closing the orifice by a valve attached to the anterior portion of the lower shell, and thus effectually protecting itself against all danger. Their general color

is yellow, irregularly marked with brown, or black, no two of the animals scarcely ever agreeing in appearance; and it is stated by good authority, that the shell is so hard, and their limbs so strong, as to enable them to walk with the weight of sixty pounds upon their backs." He doubted stories of the great ages they attained, all such accounts depending upon dates carved in their shells, the year being "no doubt antedated by the inscriber."⁹⁰

Saturday, 26 September: "I saw an account in an English journal that a perfect petrification of a human leg had been discovered at Whitby, in England." It was "about the size of a middling sized leg, and perfectly formed, with the exception of its being slightly swollen at the ankle and heel. To the truth of this story, I feel very much inclined to doubt, for I know of no process by which such a circumstance could possibly be accomplished, and it is a well known law in nature, that all animal matter is much more liable to putrify than to petrify, consequently, if any part of the leg could have been preserved in the rock, it must have been no other than the bones; and the rock at Whitby is the Lias of authors, a formation too old in the series for such discoveries, even allowing that such a thing ever did take place in any of the series. It is true, that there has [!] been many accounts of the discovery of antediluvian human bones in various parts of the world, but recent investigations have determined them to belong to extinct animals, and not to the human race." Finally: "A severe frost occurred last night which seriously injured much of the corn in the vicinity of the city."⁹¹

Monday, 28 September: "This evening, just after the darkness set in, I had an opportunity of witnessing the flight of two woodcocks...through the streets of our city within a few feet of the spot I occupied. This is not such an unusual occurrence as many have been in the habit of supposing, for I recollect in the space of a few years several instances of the kind, and not long since, a friend of mine shot an individual of the species from a garden in the very heart of the city."⁹²

Tuesday, 29 September: "The common Horse Leech...is very common in the vicinity of

Albany, in the Hudson river, but more particularly in the small brooks and ditches which drain the meadows about; to day I observed them in great numbers, in a small pool from whence the water was rapidly evaporating, they were unquestionably, in the first instance, introduced thither by some freshet of the river, and where they have since bred, as I saw them of various sizes, and also differing greatly in the color of their markings. This species, when properly prepared, is considered by good authority, more efficacious in extracting blood than any of the others, but the great objection to their use is, that when disturbed during the operation, they are very apt to leave their teeth in the wound, and by that means cause a flow of blood, at once difficult to stop, and also, an inflammation, not only very painful, but dangerous in its nature."

Wednesday, 30 September: "Our migratory birds which have for some time back been congregating in flocks, are now rapidly departing to the more genial regions of the south, and many of those which have spent the summer season much farther to the north, are now again making their appearance, and to day I was much gratified by observing in some of our orchards, the beautiful little Ruby-crowned Wren....These birds pass to the north in the early part of the spring, and breed in great numbers in the neighborhood of Hudson's Bay. They return again gradually during the months of autumn. Those I saw to day were so busily employed in searching for insects, that I could frequently approach till within a few feet without disturbing their labors, and which offered me a fine opportunity for inspection." And, a final comment: "Vegetation is fast disappearing from the sight, few plants are now in flower save the many species of Asters."⁹³

With his account of September, James Eights ended his adventure through the growing season of the year 1835. It is unfortunate that Eights's perennial diary of the seasons has not survived, although it surely must have been in existence at one time. We shall perhaps meet excerpts from it from time to time. It is clear enough, in any case, that the present series was written pretty much off the cuff in 1835. It

ended with September of that year, not because all natural life stopped at that time but because Eights was off on another adventure, described in "Notes of a pedestrian." The episodes in the latter series are not expressly dated but a few dates can be discerned. The next chapter continues the saga of Eights in the 1830s with particular reference to the *Zodiac* years, with emphasis on "Notes of a pedestrian" and a couple of individually titled essays.

NOTES

1. AI, Minutes; *Argus*: for this period, see 28 Apr 1832, the first notice of Eights since his return from the Antarctic, a donation of copper coins. On 22 Nov 1833, there was a notable list, including "African Locust, blown on board a vessel by the north east trade winds, at 300 miles from the coast"; fossils from Germany, Surrey, Hastings sand from Tilgate Forest, Oxford; ten trilobite fossils from Albany vicinity.

2. AI, "Catalogue of Properties"; there will be further notice of Eights's salamander when *The Zodiac* articles are analyzed; my thanks to Alvin Breisch for alerting me to the significance of an Eights specimen of the tiger salamander, presumably this one (in 1987 it had the N.Y. Mus. No. 5888). Annual Reports of the State Cabinet of Natural History for 1860 (p. 16) and 1864 (p. 14) listed this species, then called "*Triton tigrinus*," among desiderata of the Cabinet — then, of course, missing from their collection, for it was not until 1892 (Anon., 1893, p. 21) that the State Museum accessioned this Institute specimen. The species is now *Ambystoma tigrinum* (Green). See Sherman C. Bishop, "The salamanders of New York," pp. 172, 325. JE later found a second specimen of this rare species, as reported in his "Every day book" for 28 May 1835. Carolyn Kirdahy, Boston Museum of Science, has been kind enough to draw my attention to a watercolor by Eights in their archives; it is captioned in JE's hand, "*Salamandra Tigrina* (Green)" and signed by Eights; on reverse is his manuscript note: "from the banks of the Mohawk River, N.Y. / James Eights." The brackets around "Green" were unnecessary; see Green's *Salamandra tigrina* 1825 in "Description of a new species of salamander." James Stevenson (1781-1852), conveyor of the pepper-containing gourd from Chile, was an Albany attorney, Mayor 1826-1828, and Institute Counsellor.

3. AI "Catalogue of Properties." JE was into making plaster casts of medallions (recall one honoring DeWitt Clinton); he sent a duplicate of the medallion of Jöns Jacob Berzelius (1779-1848), Swedish founder of modern chemistry, to Joseph Henry.

4. *Libinia* is a shallow-water marine spider crab.

5. *The Cabinet of Natural History and American Rural Sports* was a short-lived (1830-1833) periodical that attempted to present respectable natural history observations as well as hunting anecdotes, illustrated by colored plates of better than average quality for the time. Jacob Green's letter is in vol. 1, p. 96: an account of the "occa-

sional stupidity" of the "pheasant" (grouse) as exemplified in an individual observed some time since at Albany; Eights's letter, "Habits of the ruffed grouse, or pheasant," was a rambling affair that alluded to an experience in the autumn of 1814, a report "about three years since," together with reminiscences from a severe winter "about fifteen years since." JE was listed as a possible contributor in a note on the wrapper of vol. 1, no. 11 (Gail Stewart, editor, the Imprint Society's reprint of the *Cabinet*, 1973, pp. x, xii [note 4]).

6. Eights has left no record of these encounters. I thank Charles Boewe for his help with Rafinesque records; it is noteworthy that, in his definitive research on the correspondence of Rafinesque, he has found no instance of letters between the two naturalists. See C.S. Rafinesque, *A Life of Travels*, pp. 106-107 (337-338 in Merrill reprint); essentially the same information is to be found in the French original, *Précis ou Abrégé des Voyages, Travaux, et Recherches*, p. 94. See also sheets 7, left and right, MS 13:1:5 (Rafinesque's Journal for 1833-1834); Charles Boewe helped with certain transcriptions and Ann Hyde, Curator of Manuscripts, Spencer Research Library, University of Kansas Libraries, kindly provided a consultation copy of certain passages.

7. Henry, *Papers*, 2: 272; Al, "Properties," Aug 1834, "A Plaster Medallion of Berzelius, copied from a foreign one in Iron." James Henry (1803-1851) was at one time a bookseller in Albany.

8. Albany *Argus*, Anon., Tuesday 6 and Wednesday 7 May 1834. Your cynical commentator on things Albanian would not be surprised at such shenanigans! Still, it must have given rock-ribbed old Federalist Jonathan Eights a turn to have his own son engaged in such lowly endeavors.

9. Henry, *Papers*, 2: 486-487. Philip Ten Eyck (1802-1892) was Henry's successor in the Institute, as well as at the Albany Academy. Eights's visit to Pennsylvania coal mines was the one touched upon in "Notes of a pedestrian," that appeared in *The Zodiac* in 1836. The reference is to Benjamin Silliman's *American Journal of Science*, then commonly referred to as *Silliman's Journal*, where an uncommonly long account by Samuel Prescott Hildreth (1783-1863) of Ohio, "Observations on the bituminous coal deposits of the valley of the Ohio, and the accompanying rock strata," did indeed nearly fill an entire number of Silliman's prestigious periodical for October 1835. Eights's reply to Silliman and Hildreth was not quite so straightforward as promised: rather, he slipped it into his 7th "Notes of a pedestrian." His quaint conclusions will be noticed in my commentary on that series of articles.

10. A good history of *The Zodiac* may be found in the preface of a facsimile edition edited by Don Rittner, 1980, pp. [i]-[ii]. Note that Rittner created a title page and provided an index for volume 2; the magazine ceased publication without notice with the issue of January 1837, with neither title page nor index being provided by the publisher. Erastus Perry (1786-1858) is described by Rittner as an Albany "realtor and credit collector."

11. The reference to the absconding Perry is on p. 48. The volume ends, with no signs of its impending demise, on p. 112. General Henri Lafayette Villaume Ducoudray-Holstein (1763-1839) was author of several books on French grammar and popular biography.

12. Rittner (in his index to the *Zodiac*, volume 2) cred-

ited Eights with the these articles on a European tour and Char Miller ("The scientific career of James Eights: an annotated bibliography," pp. 12, 13) accepted them on that authority. I have no doubt that Eights was not the author. He was off on other pursuits by then and there is not the slightest evidence for such a trip. Furthermore, the writing is totally unlike Eights's style. The suggestion that he may have already been in Europe buying books and instruments for the proposed great South Sea Exploring Expedition is untenable, since the trip described in these articles was completed well before any such purchases could have been made; furthermore, the official record of planning for that expedition fails to mention such activity on the part of Eights.

13. Interestingly enough, the only signed article by Eights, on the rock sequences in New York geology, was indexed without his name. Whether it was a case of anything on natural history goes and Eights had not provided copy is not clear; Swainson's "Natural history" was soon replaced by Eights's new series, "Notes of a pedestrian," and the final (but phenologically earliest) installment of the "Every day book." "Pedestrian" alone spilled over into volume 2.

14. Phenology's popularity ebbs and flows. For a definition, see *OED*, (2), 11: 672; for a modern example with a perspective, see Aldo Leopold and Sara Elizabeth Jones, "A phenological record for Sauk and Dane counties, Wisconsin, 1935-45." An example from the Albany area that may have encouraged Eights to record his findings on a seasonal basis was written by Lansingburgh (Troy) horticulturalist Alexander Walsh, "A record of the leafing and blossoming of fruit, ornamental and culinary plants, in the month [of] April and part of May 1831...and of the appearance of birds and insects."

15. *The Zodiac*, 1(9): 129-132; I take it that it was prepared by Eights the previous year to begin his series. Perhaps *The Zodiac* did not get underway in time to make seasonal use of it. The author's initial long drone on the glories of the "long wished for and ardently anticipated month" that "has at length appeared" makes it even more likely that he thought of it as introducing a study of a single growing season.

16. Eights, like any author, was at the mercy of his type-setter; I have italicized his scientific names as would usually be done today. Some effort is made to untangle botanical names, both common and scientific, when required. The scientific names used will either be the correct ones or the correct one will be added (if total uncertainty prevails, the name used by JE will be cited). Botanical authorities are primarily Don Rittner's "Flora of the Pine Bush" (pp. 103-166, in his *Pine Bush*) and New York Flora Association's *Preliminary Vouchered Atlas of New York State Flora* (1990); the former will be cited as "Rittner" and the latter as *NYSF*. Certain older names will be traced in *Index Kewensis* and M.L. Fernald's *Gray's Manual of Botany* (8th ed.). Many people would have appreciated information about medicinal benefits attributed to the violet and other species. The phenological comment on the lateness of its flowering, if based upon evidence, is a valuable observation. As to his names, his early buttercup (*Ranunculus*) seems all right, although the species is not listed in Rittner. *Thalictrum anemonoides* (note misspelling) is now *Anemonella thalictroides*, rue anemone. His early saxifrage, *Saxifraga virginianus*, is all right, although not in

Rittner. *Viola blanda* is listed by Rittner as kidney-leaved violet but is not credited to Eights; it is not now in *NYSF* and their kidney-leaf violet is *V. renifolia*.

17. Common names and comments on distribution of reptiles are taken from Roger Conant's *A Field Guide to Reptiles and Amphibians*. This characterization of the wood turtle (*Clemmys insculpta*) is right on target. Archie Carr, *Handbook of Turtles*, pp. 482, 532, refers to JE's turtle notices in the *Zodiac* but does not appear to use the records in his text.

18. The red salamander is now *Pseudotriton ruber*; identification confirmed by Margaret M. Stewart. Eights's generic name of *Andromeda* for leather-leaf today takes you to bog rosemary, an entirely different plant: while leather-leaf is still leather-leaf. So much for nomenclatural stability as a major achievement of the Linnaean binomial system!

19. For a general early (undated, but before 1856) account of "The sturgeon trade," see Joel Munsell, *Annals of Albany*, 7: 255-256. See also Henry P. Phelps, *The Albany Hand-book for 1881*, p. 119; and "The rhyme of Sturgeonopolis, a coöperative poem" (1880) (which, however, says nothing about sturgeons!). In Munsell's time, an estimated 312,500 pounds of sturgeon meat was marketed during an average summer season in Albany. No wonder it was "Albany beef"! The main species, the Atlantic or sharp-nosed sturgeon (*Acipenser oxyrinchus*), measured from four to eight feet (there are former records of 18 feet); the record weight then known for an individual fish at Albany was 486 pounds. The smaller species mentioned by Eights (maximum length about three feet) was the now gravely endangered short-nosed sturgeon (*Acipenser brevirostrum*). Both were anadromous fishes that came upstream in the Hudson to spawn.

20. His black (now dusky) salamander is *Desmognathus fuscus*, a notably variable species. His wil-low butterfly appears to be our mourning cloak.

21. Recall that "the Botanical Committee" of the new Albany Lyceum of Natural History on 9 Jun 1823 reported the first local record of the white troutlily, a discovery credited to James Eights. Eights's intimation here that the white species was "never found eastward of the Mississippi river, until a few years ago" is not correct, although it does have a restricted distribution in a narrow band across central New York from west to east (*NYSF*).

22. The literature on cicadas, periodical and otherwise, technical and popular, is enormous. See Paul Dudley's early notice of them in New England, in R.P. Stearns, *Science in the British Colonies of America*, pp. 468-471; J.A. Lintner, Report of the Curator of Entomology, New York State Museum, 44th Annual Report, for 1890, pp. 296-301, comments upon them in New York; see various papers by Henry S. Dybas and Monte Lloyd, as well as H.S. Dybas and D.D. Davis, "A population census of seventeen-year periodical cicadas."

23. His *Testudo punctata* is the spotted turtle, now *Clemmys guttata*. The young turtles were sharing a sunny spot with adults; parents do not interact with young; young hatch in late August but late-emerging hatchlings may overwinter in the nest (thanks to Margaret M. Stewart for comments on this). *Viola lanceolata* still stands, while *V. mulhlenbergiana* is perhaps now species *conspersa*; *Polygala paucifolia* and *Potentilla canadensis* still stand; *Vaccinium resinolum* is now *Gaylussacia baccata*; *Quercus hanisteri* is now species *ilicifolia*.

23A. On 1 Mar 1836, Eights presented to Albany Institute specimens of "Helix albolabris showing their mode of mending the shell." If he read a paper of any sort on this, it was not published.

24. The role of the Erie Canal (as canals in general) in the dispersal of species is an interesting one. However, in the case of the small-mouth black bass, *Micropterus dolomieu*, the role ascribed to the Canal may be doubted; the species appears to have always been distributed throughout at least northern New York, perhaps Albany was near its southeastern limits and so had not commonly been observed in previous times. Eights may also have been misled by Lesueur's claim that it was so exclusively a species of Lake Erie.

25. "Pinxter blomache" must be Eights's Dutch name for a species of *Rhododendron*. While he gave it the name *Rhododendron nudiflorum* — the name usually equated with pinxter flower — he may have actually seen (and smelled) *Rhododendron roseum*, a more widespread species. Fernald holds flowers of *nudiflorum* to be "essentially odorless," while those of *roseum* are very fragrant. JE's box turtle, now rare in New York, is *Terrepenne carolina*.

26. The arrival of the tiger salamander by way of the Erie Canal is most unlikely. The appearance of a second specimen (the first was noted above, Note 2) indicates a notable local population of the species at that time. See S.C. Bishop, "The Salamanders of New York," pp. 172-173.

27. The lupine is one of the Pine Bush's most noted plants, being the obligate food of caterpillars of the Pine Bush's Karner blue butterfly. See Robert Dirig, "Karner's famous Blue Butterfly," pp. 197-210. For a definitive study, see David Alan Andow et al., eds., *Karner Blue Butterfly*. *Styrandra* was the old generic name for *Maianthemum*, false lily-of-the-valley; perhaps the application of *bifolia* was incorrect; he meant the species *canadense*.

28. Whether bobwhites are reliable prognosticators of weather may be doubted; it is likely that ants swarm more commonly when air is heavy with moisture, a physiologically less stressful time for them; I see no reason why they could not perceive humidity more directly than is suggested here. As for the mussel, while it is mainly an interior basin species, it is not restricted to the Normanskill, being found in scattered streams of the Hudson River basin — see David Strayer, "Ecology and zoogeography of the freshwater mollusks of the Hudson River basin," pp. 32, 57; Strayer's comment that it did not likely enter the Hudson by way of the Erie Canal is well taken, particularly in view of Isaac Lea's comment in 1829 that his type specimen came to him from James Eights, by way of Daniel Barnes, "some years since" — certainly too early for mussels to have made their way eastward along the Erie Canal (I. Lea, "Description of a new genus of the family Naïdes, including eight species," pp. 450-451).

29. So far as I can tell, his dwarf scabish was an evening primrose, a notoriously variable genus, his taxon is now considered a form of *Oenothera biennis*.

30. His *Salamandra subviolacea* is *Ambystoma maculatum*. The astute comment about using artificial flies modeled after successive hatches of mayflies will evoke a cheerful comment from fly-fishing buffs, who do just that, the "entomology" of fishing flies being almost as complex as the natural history of the insects themselves.

31. Ground ivy (*Glechoma*) and sweet briar are not native species; his *Cerastium*, field chickweed, is now *C.*

arvense; he calls his frost grape *Vitis vulpina*, which would once have been right; it appears that the latest wave of experts call it *riparia* — but it is still frost grape.

32. Solomon's seal is presumably now *Polygonatum biflorum*; his *Anemone* was more recently *A. dichotoma* and appears now to be called *A. canadensis*; if his *Unio radiata* "of Say" was actually "of Gmelin," it is now in the genus *Lampsilis*.

32A. This swallow account is Eights at his most annoying. Without describing the bird and nest that he saw, he brings in two other species of swallow; the extent to which these differ from the one he saw is not clear. It seems to me he implies that his species was different from Clinton's cliff swallow (now *Petrochelidon pyrrhonota* but then likely to have been called *Hirundo fulva*). Why he thought it possibly the European house martin, *Hirundo* (now *Delichon*) *urbica*, I do not know, unless from the shape of its nest: Its wall of mud pellets narrows to a rather wide opening above, instead of the classic laterally placed nozzle he attributes to the American cliff swallow. In any case, Clinton merely noticed the species: He did not describe and name it. It does appear that the cliff swallow became common in the Northeast only in Eights's time: (1) it was only becoming known in the 1820s — Thomas Say named a Midwestern specimen *lunifrons* in 1823 but it was later found that Rafinesque had named a Kentucky specimen *albifrons* in 1822 — see Samuel E. Perkins III, "Letters by Rafinesque to Dr. Short," p. 206; due to tangles of priority, etc., both have been displaced by *pyrrhonota* of Vieillot, 1817; (2) Jeannette E. Graustein, "Early scientists in the White Mountains," p. 60, recalls an observation of the Boston botanist, J. Wright Boott, that cliff swallows as "newcomers from the Far West, began to build at Crawford's in 1818"; (3) Robert Howell, in "Some observations on the cliff swallow," reported that the species was first seen at Nichols, Tioga County, "about the year 1838 or 9, in small numbers, and has since that time increased yearly"; (4) from Eights's own later works, there is an entry that seems to indicate that it was indeed the cliff swallow of Clinton to which he referred: see "Scraps from a naturalist's note book [5]," May 1853, where he says that the species appeared in the Albany area about the year 1822; (5) for the sort of structure Eights meant by "the half-way house on the rail road," see the painting by E.L. Henry, published under the title of "The Childhood of Rapid Transit" (Schenectady Museum), in *The Conservationist* (Albany), Nov.-Dec. 1977, p. 25.

33. Evening primrose flowers are not phosphorescent (that is, luminescent) at night; an individual flower is open for only one night: the whole plant may sleep away the day but each flower closes to open no more.

34. Whatever errors Eights made in identifying plants with the primitive floras he had at hand, we have now to add the tangle of a century and a half of nomenclatural free-for-all among botanical authorities. Some questionable names have been noted parenthetically. As for upright loosestrife, *Lysimachia stricta* Ait., it is now presumably *L. terrestris*; his beard-tongue is now *Penstemon hirsutus*; *Campanula amplexicaulis*, his clasping bellflower, is Venus's looking-glass in a related genus, long called *Specularia perfoliata*, now *Triodanis perfoliata*; Rittner accepts his basswood as a subspecies of the native *Tilia americana* and calls it southern basswood.

35. While Eights's philosophy of nature is familiar

enough, he has struck out in regard to true insect-catching (or at least insect-using) behavior in flowers of dogbane (genus *Apocynum*). Evidently, smaller and weaker insects flies do become entangled in sticky clefts between closely connivant stamens and are unable to extricate themselves. This can be clearly seen in flowers of milkweed (genus *Asclepias*). In the latter, insects too small to pull their legs from the specialized structures of the flowers and carry off the massive pollen sacks are frequently trapped miserably. Benjamin Smith Barton ("Memorandum concerning a new vegetable muscipula") found great numbers of houseflies trapped by legs or proboscides in milkweed flowers. He noticed that Erasmus Darwin had imputed the same powers to *Apocynum*. Darwin thought the plant capable of muscular movement: "The apocynum androsemaefolium contracts its petals or nectaries round the proboscis of the flies which stimulate it, and holds them till they die, or till the sleep of the plant releases them by the relaxation of its muscular action" (Desmond King-Hele, *The Essential Writings of Erasmus Darwin*, p. 103, from Darwin's *Phytologia*, pp. 132-133). Dr. Darwin was both imprecise in designating how the insects were trapped and quite wrong in regard to "muscular action" of the plant.

Apocynum flowers lack some of the specialized anatomy that milkweeds have for treating with potential pollinators (and killing off the unwary nonpollinators). However, anthers of *Apocynum* flowers lean inwards toward the style and at one point touch and are essentially attached to it. One authority holds that, at their upper ends, "the chinks between the anthers narrow...and serve as clips to hold fast unbidden guests. The actual pollinators...after sucking nectar are obliged to withdraw their proboscis between the anthers, i.e. through these clips, and it can only be freed by the exercise of considerable force. During this withdrawal the proboscis passes over the stigma, and its sticky upper edge through the pollen-chamber, from which it takes up some of the adhesive granular pollen, to be transferred to the next flower visited" (Knuth, cited below). This implies that weak and tiny insects might be held by their proboscides. In any case, these examples of insect-catching by *Asclepias* and *Apocynum* serve no useful function to the plant and, indeed, fail to accomplish its needs in the matter: that of ensuring cross-pollination. One wonders indeed at the story of the London nurseryman who smeared meat on leaves "of this plant": Can Eights refer to "experiments" where leaves of the Venus fly-trap or other truly carnivorous (insectivorous) plant have been so treated? Since natural history studies of plants are now out of fashion, readers may want to know more about pollination strategies by milkweeds and dogbanes (and fates of innocent and useless thieves of nectar who fall victim to them): Friedrich Ludwig, "Über die Bestäubungsvorrichtung und die Fliegenfalls des Hundskohles, *Apocynum androsaemifolium* L.," F. Ludwig, "Zur Biologie der Apocyneen"; Paul Knuth, *Handbook of Flower Pollination*, vol. 3, pp. 88-89; Wendy B. Zomlefer, *Guide to Flowering Plant Families*, p. 243. The best modern study is R.E. Woodson, Jr., "The dogbane: roadside weed and future staple." Woodson has dismissed most of the more fantastic claims, writing (p. 95) that the number of insects caught is relatively small, that there is no spectacular elastic movement of stamens, that there is never any movement to release the insect. He believed sticky nectar to be the main element retaining small insects (p. 96) but

supposed that tiny insects might wedge their proboscides between the rather closely apposed parts of the inner flower (p. 98). His illustration of flower parts, p. 97, is excellent. I am greatly indebted to Sally Underwood for help with source material on this interesting matter.

36. As to *Copris*, it is a scarab, one of the dung beetles. Eights was certainly in error to suppose the parasites of these beetles were aphids; no doubt they were acarid mites; "bugs upon bugs" is a common sight in entomology and, indeed, the watchword of ecology.

37. The dubious repute of native species of *Kalmia* is thoroughly reviewed by Charlotte Erichsen-Brown, *Medicinal and Other Uses of North American Plants*, pp. 196-199.

38. This is a mixed bag. We are not informed of the seasonality of firefly activity. The final observation that the activity diminishes by midnight seems to the casual observer to be correct. While the larvae feed actively upon various small invertebrates, the food of adults is not so easily characterized; apparently, it is usually nectar — or nothing at all. That the flashing lights bring the sexes together (the various species having different flashing sequences) cannot be doubted; I think JE's conclusion that males have diminished flashing powers is not correct.

39. July's account appeared in two installments, *The Zodiac* 1(2): 23-25, (3): 33-35, August, September 1835. Naturalists will recall the recrudescence of whip-poor-will song after a midsummer diminution.

40. There are numerous species of digger wasps that provision underground tunnels with paralyzed spiders for their forthcoming young; the generic identification is not to be taken too seriously. Erasmus Darwin relates a similar instance of reason in a wasp: the wasp had paralyzed a fly nearly as large as itself; when it attempted to fly with its prey, the fly's wings were caught by wind and caused the wasp to turn around in the air; the wasp settled to the ground: "I then distinctly observed him cut off with his mouth, first one of the wings, and then the other, after which he flew away with it unmolested by the wind" (Darwin, in *Zoologia*, 1: 263, in D. King-Hele, *Essential Writings of Erasmus Darwin*, p. 66).

41. His identification of the butterflies, July 4-5, as *Vanessa antiopa* of Leach is somewhat misleading (apparently it was named by Linnaeus, not Leach). These are now called mourning cloak butterflies and generic allocation has ranged from *Vanessa* to *Aglais* to *Nymphalis*. I am not acquainted with Réaumur's account of the blood-spot mentioned in the ensuing entry of 5 July. W.H. Elder tells me the subject is not discussed in any of the standard, comprehensive American butterfly books. However, he has witnessed the phenomenon, having reared this species to adulthood. Lepidopterids, he explains, have a body fluid (of various colors in different species) that is pumped into the unfolding wings to expand them to full size; at the end of the process, the fluid is ejected from the body.

42. The record of the soft-shelled turtle was a notable one, it obviously being an individual that had dispersed southward from a population in extreme northeastern New York; otherwise, the species is found in western and northern New York only. The species is the eastern spiny softshell; Eights's *ferox* is now restricted to a southeastern Florida species; however, Eights need not have doubted the ferocity of any of the softshells. That a softshelled turtle from the Albany area was a novelty may be gathered

from the stir created when R.V. DeWitt brought back living specimens from Cayuga Lake to the Institute; they were displayed at the meeting of 1 Sept 1824; the recording secretary, M.H. Webster "read a description of the *Testudo ferox* extracted from Turton's Linnaeus, by the Hon. DeWitt Clinton"; at the Institute meeting of 13 Oct 1824, "A notice of the *Testudo ferox*, genus *Trionyx* of Cuvier, by Dr. James C. Dekay [DeKay] of New York was read" (these papers are abstracted in Institute *Transactions*, 1, pt. 2, app. pp. 29, 30). Note the New York distribution of this turtle in A. Carr, *Handbook of Turtles*, p. 414.

43. His *Sagittaria heterophylla* Pursh is now *S. rigida*; if his common name is to be trusted, his hedge hyssop was *Gratiola neglecta*. Lady's-tresses, *Spiranthes tortilis* Rich., is questionably named by Eights; I presume it is now *Spiranthes gracilis* or *S. lacera* var. *gracilis*, although Rittner does not credit it to Eights.

44. Given the widespread distribution of eels in the upper Midwest and in Lake Erie and along the St. Lawrence, I think Eights's claim about their primitive distribution needs to be weighed carefully.

45. I have been unable to identify his lacewing, called here *Osmylus maculata*. Rattlesnake plantain is still secure but his other two orchids have wandered about in classifications: bog-candle (or white) and large round-leaved orchid were then and are now *Plantanthera*; in between, they were long comfortably called *Habenaria orbiculata* and *dilatata*.

46. There is no way to decide with certainty if Eights saw the black racer (even though he calls it *Coluber constrictor*) or the black rat snake (*Elaphe obsoleta*). Maybe he nodded in the summer heat: He certainly knew that nothing in nature tells you what the weather will be next winter; it is even more surprising that he would provide his rule with a built-in escape clause.

47. The final statement rather shakes one. He appears to use "Tettigonia" as a generic name; if so, it applies to orthopterans known generally as katydids, species that no one would confuse with any of the grasshopper-like locusts.

48. As for agrimony, he uses the name *Agrimonia eupatorium* and I guess this to be *A. parviflora*, woodland agrimony, although Rittner credits JE only with *A. pubescens*; one trusts that he distinguished between two water-hemlocks, *Cicuta maculata* (his name) and *C. bulbifera*; both have the chemical qualities he mentions.

49. The account goes on. Why Eights failed to share with his audience the fact that scarabeid dung beetles, or tumble-bugs, known to every schoolchild, were actively engaged in making balls not of earth but of manure into egg-cases and food sources of young is beyond me. For general life history, he probably consulted the received, generalized version of his day. Evidently, eggs are laid in (or with) the balls of dung after the latter are rolled (with all the dedication that he lauds) to the nest tunnels. His beetles may have been in the modern genus *Phanaeus*.

50. His *Lobelia kalmii* is Kalm's or brook lobelia; *L. claytoniana* is *L. spicata*. As to *Apocynum*, his species are now *A. sibiricum* and *cannabinum*. His *Aster conyzoides* is somewhat problematic and I assume it to be what some authors call genus *Sericocarpus*, white-topped aster; given the tangle of species within the genus *Aster*, it is better not to be dogmatic as to what Eights had in hand. JE's memory played a joke on him in regard to the weaving of the floss of milk-

weed seeds into cloth; Margaret Gerrish, in "The Asclepias Syriaca or milk weed a substitute for flax," referred entirely to the use of the processed *bark* of the stem as a fiber source.

51. This is an interesting early account of territoriality in dragonflies; technically, young dragonflies are called nymphs, there being no sharply defined states such as larva and pupa. He does not distinguish the various well-marked species.

52. JE was talking about green lacewings, family Chrysopidae, not a brown lacewing, which his genus *Hemerobius* is. Orange milkweed has proved a popular garden flower.

53. I think I have his fossils spelled as he intended; his prose occasionally has a way of becoming hopelessly intertwined. The old orchid genus *Habernaria* has fallen prey to nomenclators and is now *Plantanthera*; both his species names (for, respectively, large purple fringed and orange or yellow fringed orchids) have survived.

54. His lion's-foot (or gall-of-the-earth or rattlesnake-root) is *Prenanthes serpentina*, if proper specific status was determined. Yellow false foxglove, is now called *Aureolaria flava*. Water-target is not easy, for the common name is now water-shield and the scientific name is *Brasenia schreberi*. His small spearwort seems to be *Ranunculus reptans*. Beech-drops or pine-drops, although very rare, is not confined to the State of New York. It is not clear where Dr. Edwin James (1797-1861), for some years in active practice in Albany, and an ardent naturalist, presented his account of *Pterospira*.

55. The August installment was in *Zodiac*, 1(3): 42-44, Sep 1835. *Hypericum*, St. John's-wort, offers some difficulties; he has the species *ascyroides* and *kalmiana* but appears to mean *ascyron* and *kalmianum*; there are few New York records for the latter and none near Albany county.

56. Horse botflies (family Gasterophilidae), whose life history is described, have a very different life cycle from flies of the genus *Oestrus* (family Oestridae, sheep botflies, etc.) whose genus he names.

57. It is not possible to make much of the grasshopper interlude, since no species are mentioned; noise production of typical grasshoppers is somewhat as he describes, although there is great variation among orthopterans in how instrumental music is made. Various hawks do prey upon grasshoppers. Ferns do not bloom.

58. Such behavior of spiders, ballooning as it has been called, when gossamer is produced freely, surely functions as a dispersal mechanism and is common among orb-weavers and many other diurnal species.

59. Crayfishes, of course. I cannot imagine their not being common more or less year-round. His nomenclature is needlessly tangled; Leach was not author of the genus; it is now *Cambarus bartoni*, if his identification was correct. For a contemporary illustration of *Astacus bartoni*, see J.E. De Kay, *Zoology of New-York...VI. Crustacea*, pl. 8, fig. 25.

60. JE's Panglossian philosophy shows through in regard to the herrings; unless one harvested one-year-old fish, a spawning this year would not guarantee a grand harvest a year hence. His river herring is also known as alewife, *Alosa* (sometimes *Pomolobus*) *pseudoharengus*, unless he misidentified *Alosa aestivalis*, the blueback herring.

61. *Cuathophyllum* is a genus of long-extinct tetracods. His reconstruction is imaginative but requires a draw-

ing to make the description effective. To say the little animalcules "masticated" their food stretches it.

62. The peachtree borer he describes is either the hornet moth or a relative; he does not exaggerate the damage done by them.

63. As for fireflies disappearing *because* of cooler weather, this is perhaps an example of Whitehead's "fallacy of misplaced concreteness." His pickle plant is unicorn-plant or elephant's trunk, now *Proboscidea louisiana*, considered to be a rare escape in New York.

64. In providing his gentian with a common name, Eights misread the scientific name as *Gentiana* (now *Gentianella*) "*quinqueflora*," instead of *quinquefolia* — and provided a common name accordingly; it is now called small stiff gentian or gall of the earth, the latter reflecting the bitter taste that he notes. The second *Eupatorium* is called pale Joe-Pye weed. I see no authority who makes it such a height as claimed here.

65. The statement itself is a singularly murky one: I do not see any sense in "the season has now arrived in which atmospheric phenomena most generally prevail!"

66. For further notice of these plant remains, see JE's "Observations on the geological features," p. 346 (1852).

67. His worm-seed is now called Mexican tea. Why "Mexican," I do not know, unless because, as with "horse-mint," "horse-radish," and "Indian turnip," fit only for uncivilized palates. As with many homegrown remedies, one needs to be careful not to fall victim to the belief that if a little is good, a great deal is much more beneficial: In amounts little more than the prescribed doses, grave results may ensue (Erichsen-Brown, *Medicinal and Other Uses*, pp. 415-416).

68. His "common field Cricket" would presumably now be placed in the genus *Gryllus*. For my part, having little sympathy for the heat of summer's months of harvest, I have thoroughly enjoyed the song of crickets in winter months, when lucky enough to have one claim hospitality in my basement. Crickets would surely soon eat their way out of a paper cage.

69. His *Clytus* is perhaps the locust borer, *Megacyllene robiniae*, or related long-horned beetle. Not the clearest writing ever; but it will be evident that it is the larvae of the insect that damage locust trees.

70. In the absence of species identification, nothing can be made of the "common rail" — there are Atlantic coastal rails that would, indeed, be uncommon inland; but there are also similar inland freshwater rails that would have occurred in the Albany area.

71. This is the strange phasmatid given the common name of walking-stick, now *Diapheromera femorata*.

72. The September offering appeared in *The Zodiac*, 1(4): 60-63, Oct 1835.

73. Eights uses botanical names only here; for the most part, I have reduced the list to one of accepted common names. I indicate here most of his botanical names and comment on a few that require further explanation. Monkey-flower, which he calls *Mimulus alatus*, is called "rare" by NYSF, although there are voucher specimens for a few New York counties; Rittner does not include the species in the pine bush flora, nor does he credit Eights with collecting his one species of this genus, *M. ringens*, a widespread and common species. Chaff-seed, *Schwalbea americana*, seems excessively rare in New York; considering its common blooming time of May-July, perhaps Eights

did not see it in bloom but merely collected specimens this date. His *Gerardia glauca* of Eddy, smooth foxglove, having for a time been called *G. quercifolia*, is now *Auricularia flava*. His *Pedicularis pallida* of Pursh, lousewort, is somewhat of a puzzle. This is now called *P. lanceolata*, a species of the genus found in this area (and still called “lousewort”) that blooms August to October; Rittner does not list this species but does correctly credit Eights with *P. canadensis* — a species that blooms much earlier than this date. One should have no trouble with horse balm, *Collinsonia canadensis*, also called richweed and stone wort. His trailing bush-clover is *Lespedeza procumbens*; tufted (or cow, blue or bird) vetch is *Vicia cracca*. Giant ragweed is *Ambrosia trifida*; what I have elected to call common ragweed, he calls *A. elatior*, now accounted a form of *A. artemisiaefolia* — oddly, Rittner credits Eights with the former but not the latter species. Rittner lists five species of pondweed, *Potamogeton*, crediting none to Eights; he does not list Eights in regard to *P. perfoliatus* (he calls it “*perfoliatum*”); this species is not only listed as a widespread New York species by NYSF but, notably, it is a species that blooms late in the season. I should not expect to find the cat-tail, *Typha latifolia*, in bloom in September, although Rittner does give the season of “appearance” as Aug–Sept.

74. The fish is now also called smelt or spottail shiner, *Notropis hudsonius*; Eights’s groping prose at its best is shown here and I have intentionally pruned the account but little; why the fishes of old could not have died of an exhausted supply of oxygen (as I suppose his to have done) in some general “convulsion,” I do not see.

75. I have not bothered to confirm Eights’s species name for his slug but it seems to have been the common sort; since it is hard to imagine a more pernicious pest in the kitchen garden than this animal, I can only conclude that JE was a much better naturalist in general than garden observer.

76. This sloppy entry is Eights at his worst: surely, he could have given some indication of what kind of moth he was writing about! That an economic entomologist may guess what he meant is beside the point. The egg-laying of *Hemerocampa* matches that described here.

77. One is almost inclined not to challenge the vapid-ity of this kind of writing because it is so insubstantial. I do not know if statistics bear out the initial thesis; he does not cite evidence and exceptions are ignored. As for such “wise provisions of nature” as “easily admit of solution,” an observant naturalist would be more cautious in coming to conclusions.

78. A genus of fossil nautiloid mollusks of Ordovician age; unlike the majority of nautiloids, they were coiled only at the beginning of life, the older animal consisting of a number of chambers in a straight, stick-like row.

79. The observation on bluebird migration, although something of a strawman, was essentially correct.

80. Soapwort gentian, *Gentiana saponaria*, seems a rare plant, perhaps a member of the attenuated northeastward extended pine bush flora. The asters are *Aster novae-angliae* and *cordifolius*. Water beggar-tick (*Bidens ceruina*), stick-tight or bur marigold, can be a showy flowering plant as well as a persistent weed in cultivated areas. His dodder is likely to have been the widespread *Cuscuta groenovii*.

81. This common, highly variable salamander is now called *Eurycea bislineata*.

82. He perhaps overstates pikes and pickerels as found only in running water. They also seem to thrive in small quiet streams and drainage ditches that are heavily vegetated.

83. The admirable scientific spirit of the final sentence rather redeems this otherwise notable example of someone talking out of both sides of his mouth simultaneously, and somewhat murky at that.

84. Unfortunately, I cannot guess the name of his moth caterpillar. Caterpillars of the tussock moths, genus *Hemerocampa*, are handsomely marked and can wreak great devastation upon their food supply. However, I am uncertain this is the species he had in mind. His *Quercus bannesteri* (properly *Q. banisteri*) is now *Q. ilicifolia*, the bear or scrub oak of the pine bush. His observation that such depredation had occurred is much more important than the highly circumstantial statements concerning benefits to the natural community. One wonders why the slaughter of caterpillars was not cited as a wonderful example of the providence of nature. Can he have been sure that the species overwintered underground (and, if so, in what stage)? He did not comment on the rather early, evidently slight, frosts.

85. Whatever the speculations of “the scientific individuals” of Eights’s time may have been, the Zodiacal Light is real enough and even the most elementary explanation of it makes it a quite mysterious matter — having nothing to do with atmospheric moisture.

86. Whatever species of moth Eights had in mind, it was not a member of the genus *Bombyx* (silkworm) or a close relative.

87. *Harpalus* is a genus of common ground beetles, family Carabidae.

88. Fringed gentian is now given the botanical name of *Gentianopsis crinita*.

89. The validity of his experiment is vitiated by several factors, one of which is that you are not even told how long it had been going on. As for the Chinese, part of what Eights attempts to say is that tea growers thought that the first crop of leaves in the new growing season, before the plants had exhausted their food supply, was of higher quality than later pickings.

90. The box turtle *Terrapene carolina* is now quite a rare species in New York, being near the northern limits of its range.

91. Without knowing what manner of English journal carried the story, it is trivial to quibble that a human leg of considerable age (not old, geologically speaking, of course) might be preserved if buried in a bog. The date of a killing frost is quite in line with the expectable; most corn would surely have been harvested by this date.

92. Perhaps this entry does not require comment; Eights can be supposed to have known what he was talking about (he used the proper scientific name for the time). With such shooting of any bird of significant size that came within sight, even in the city, it is not difficult to see why American cities lack the rich and varied bird populations of many foreign communities.

93. Eights’s “Wren” is now called kinglet, *Regulus calendula*.

EIGHTS IN ALBANY: THE LATER ZODIAC YEARS 1830–1836 — II: PEDESTRIAN, GEOLOGIST, ENTOMOLOGIST, HISTORIAN

With James Eights finished with his phenological account of Albany, a breather is due. Although he was already off on his way before that series ended, a look at his activities at Albany Institute shows that he remained busy on many fronts.

In March 1835, Eights contributed the vertebrae of a fossil animal from the Cretaceous of Maryland; in October, he gave two specimens of green jaspery slate from the Norman's Kill. In March 1836, perhaps a sign that he did not treasure and retain old ties, he entrusted to the Institute his original drawings of *Brongniartia* and his three vignettes of the Erie Canal (the Canal entrance on the Hudson; the Aqueduct Bridge at Rochester; the Aqueduct Bridge at Little Falls — all prepared for Eaton's Canal Survey). In June, he gave the Institute a copy of *A Simplified Anatomy for the Use of Families* and a specimen of "Hair Snake" (his *Gordius aquaticus*) from Oneida. In August, he contributed a pamphlet, *Cosmogonia, Containing Illustrations of Various Doctrines*, by the Reverend Hugh White of Watertown (1830).

In November 1836, Eights gave the Institute specimens of belemnites from New Jersey and phytolite from Canajoharie. He was probably instrumental in steering to them the gift, "by the author," of Jeremiah N. Reynolds's 1836 address on the exploring expedition to the House of Representatives.¹

The reputation of James Eights as a geologist rests primarily upon material that he contributed to *The Zodiac*. However much he learned by working for and with Amos Eaton and, later, Lardner Vanuxem during a brief tenure with the New York State Natural History Survey in 1836, all that was rather anonymous. In *The Zodiac*, for all his fits and starts, it was his own.

At this time, in order to keep all geology and para-geology in one place, it seems wise to take out of turn an unrelated piece in *The Zodiac* that was initialled by "E." (and credited to him by name, "James Eights, M.D.," in the contemporary annual index). Although entitled "Entomology," it specifically addressed only a query in regard to spiders. However, a long introductory note on the importance of the study of insects perhaps justified the title. The entire essay, described as "For the Zodiac," except for the query from a correspondent, was indeed by Eights. Did he overemphasize the importance of the subject, as one may do when called upon to justify writing about something? Was entomology nearer his heart's-desire than botany? Did his lists of plants in nearly every entry in "The naturalist's every day book" merely give readers what they demanded?²

INSECTS AND SPIDERS: EIGHTS'S ESSAY ON "ENTOMOLOGY"

"Among the manifold periodicals which continue daily to throng in upon us...how many a page do we behold, devoted exclusively to the elaborate essays of the votaries of botany; whilst one of its sister sciences, equally useful and far more interesting, can with the greatest difficulty, command the pen of even a solitary individual in its cause. Why it is, that the science of entomology is thus almost totally neglected, I am utterly unable even to conjecture: surely, it cannot be said, that nature has reared the product of this her ample field, far remote from the busy habitation of man, and consequently, that she requires too much exertion of the body or mind, in the procuration of specimens, ever to render it an object worthy the attention of many, however strong may be their inclination to pursue the study, either for edification or amusement. From the simplest plant that springs and blossoms by the way-side, to the aged monarch that rears its head in the stillness of the forest, each bears a record of the devastating march of myriads of the insect race, nor is even the tenement of man itself, exempt from their intrusive wanderings; for day after day, are we not destined to hear the bitter lamentation of some individual of our families, for injuries sustained in the comforts or luxuries of the table, or, for some favorite article of wearing apparel rendered completely unfit for service, by the perforations of some of these minute particles of creation; and how various, too, are the species, to be observed of a summer evening, as they hover leisurely along the walls of our chamber, or gliding apparently unconscious of their danger, amid the rays of the lamp's fatal flame, presently dart into its every centre, and either perish, or fall sadly mutilated upon the table before us.

"Should there be any that have not the inclination to extend their researches, far beyond the shadows of the places they inhabit, and do not consider those that visit them in the recesses of their abodes sufficiently numerous or important, they have but to walk into the garden which surrounds them, and however limited be

its extent, they will there find ample employment for the leisure hours of a season, merely in noting the various habits of the multitudes which daily throng to the little vegetation it may contain.

"To such individuals as derive pleasure from observing the beauties of nature, I would, in a peculiar manner, recommend the study of insects, for certainly, none other of her productions can present a more extensive, or richer field of enjoyment; the loveliest flowers that bloom, and breathe forth their fragrance to the summer air, are utterly unable to exhibit a more beautiful variety of tints, so delicately blending into each other, as those which she has decorated this interesting portion of her works; nor can even the vast mineral kingdom afford a single fragment of its treasures, to surpass them in the brilliant magnificence of their appearance.

"When we consider the many advantages the farmers of our country might derive from even a partial knowledge of this science, and the variety of amusements it is capable of affording those, who are not under the necessity of becoming tillers of the soil for a sustenance, it certainly appears somewhat remarkable, that we possess so little information of the habits of the commonest insects which are continually around us, and more especially so, when we reflect, that scarcely a solitary hour can elapse in the existence of the life of man, that does not, in a manner, present to his senses some of the numerous species."

These reflections were occasioned by receiving from a subscriber of *The Zodiac*, J.B. Wilcox of Castile, a letter written on 2 May 1836. Upon reading some references to spiders in "The naturalist's every day book," he was reminded of "the question... 'how does the spider throw his web across from one object to another through empty space?' ...I will mention the following facts, and wish your naturalist, if he is able, to solve the problem.

"Late in the autumn, in a yard, in which a farmer had placed several stacks of hay, the web of the spider was observed stretching across from the top of one hay pole to another, and from this to a third, and so on, until a chain of communication was formed throughout the

whole. The question immediately arose, how did he get his web across from one pole to the other? Did he fasten it at one end, descend to the ground, climb the other stack, draw it up after him, and then fasten it at the top of the other pole? This was impossible. While the question was being agitated, a small grey spider was observed on a dry spire of grass near at hand. The spire of grass was secured with the spider on it. Another spire was then set up at a little distance from it, say twelve inches, with no other object near it. The thumb and finger then grasping the spire below the spider, were gradually raised so as to drive him to the top; being pressed for room, after a little hesitation, he started off in a direct line to the top of the other spire. The moment he left the one for the other, a web could be seen, but not till then. The web was then broken, and being driven up the other spire, he went back to the first in the same manner.

"The experiment was variously repeated several times, the position being different in every case, the spires being placed at different distances, but always with the same result.

This experiment was a very amusing and interesting one, but we were no better prepared to solve the question at the end, than we were at the beginning. Now if your learned naturalist can solve this problem for us, we shall remember him with very great respect every time we come in contact with a spider.

Yours, &c.,

"J.B. Wilcox."

To this preposterous query, Eights tactfully replied: "The ingenuity that these interesting animals display in accomplishing objects which they at any time require, is with certainty, most admirably calculated to excite feelings of pleasure, and even astonishment, in the breast of the beholder; and I have repeatedly experienced great delight, in observing the peculiar manner in which the singular feat alluded to in the above letter, is accomplished by them. There are two ways in which it is principally done. The one is, to fasten the end of the thread to an angle of a fence [I assume him to mean a zig-zag rail fence], or any other object similarly sit-

uated, and then to proceed along until it reaches an opposite angle, taking the precaution of keeping it from coming in contact with any of the parts, by projecting one of its posterior limbs, through the claw of which the thread is made to glide in such a manner as to be kept nearly an inch from the wall. After having reached a situation suitable to its purpose, the slack of the web is speedily taken in, and the end, firmly secured as before. This acts as the basis line from which the others are extended in various directions. The second mode is, for the spider to ascend some eminence, and then by elevating the abdomen, rapidly to dart out threads, so extremely fine as almost to elude the observation of the spectator, until they reach some neighboring object, along which it then with unusual speed pursues its course, at the same time spinning out a much stronger line, and one far thicker in its dimensions. The experiments referred to in the preceding letter, I sincerely think must have been accomplished in the manner last described: the thread produced having been so extremely fine in its texture, and the rapidity with which the animal completed its object, renders it highly probable, that during the process it fairly escaped detection, for they are by no means constructed for a passage through the atmosphere by any other mode of conveyance than through those of their buoyant webs."

Eights then quotes at length accounts from the literature, all uniformly promoting the belief that "spiders contrive to extend lines which are often many feet in length, across inaccessible openings" only when air currents carry across the space a singularly delicate thread of gossamer. The threads are then secured and made taut; if the spider is successful in traversing the thread, it is reinforced by a stouter filament of web. He concluded by appealing to his own experiences.

"I shall now conclude this communication, with a brief description of the whole process, which I had an excellent opportunity of witnessing a few mornings since. It was accomplished by one of the larger species of hunting spiders. When first observed, it had taken its station upon a superior corner of a piece of

joist, about four inches square, and which projected three feet and a half beyond the building to which it was attached. Its abdomen was elevated in the air, and it was apparently with great industry spinning out its web, no doubt with the intention of reaching the nearest object to its position...which proved to be a plum tree, situated nearly four feet distant. This web was so exceedingly fine that a considerable time elapsed e'er [he means "ere"] I could readily discern it, floating most gracefully in long undulations upon the light morning air. In a short time, I observed that it had become entangled in one of the smaller branches of the tree, which the spider almost instantaneously discovered, and, after once or twice tugging at the line with its anterior feet, in order to ascertain that it was sufficiently secure, it suddenly, and with great force, launched out upon its aerial voyage, but not, however, before it had taken the precaution of firmly cementing an additional, and much stronger thread, to the point from whence it started. The utility of this measure soon became very apparent, for it had barely proceeded a few inches upon this slender bridge, e'er the lighter thread suddenly disunited from the weight alone, when the spider was left freely swinging to and fro by the larger line, three or four inches beneath the joist; otherwise, perfectly free from injury."

It was only upon the third attempt that the spider was able to achieve what Eights supposed its object: that of reaching the plum tree and the abundant supply of flies that it provided. He then watched its hunting behavior: "I was highly amused to see the cat-like caution with which it stole along the opposite side of the branch, towards a position where several of these insects were assembled...sometimes running for a short distance with uncommon speed, then resting for some moments, as if for reflection, and so alternately moving onward until it came within several inches of the intended spot: it now proceeded with much greater care, occasionally pausing, and slowly projecting its head around the branch, as if to ascertain its true approximation. At length, after approaching within a few inches to where the

flies appeared, it gradually stole to the upper surface of the branch, and then became perfectly motionless; and so it continued for some moments, as if to select a victim from among their number, and, for the purpose of making a more sure and deadly aim. The favorable moment having now occurred, it all at once, and with a motion almost as rapid as the light, sprung through the air, immediately upon one of the flies, and soon bore it away triumphantly to some secluded recess among the leaves."

Eights ended with the hope that he had amply explained "the manner in which spiders transport themselves, through space, from one object to another."³

EIGHTS AS GEOLOGIST: THE UNFINISHED "SYNOPSIS"

Nothing shows better than Eights's "A synopsis of the rocks of the State of New-York" his willingness to take up serious projects and put them aside unfinished. What happened in this case, I cannot fathom. Did someone anger him with criticism? Did he tread on sensitive toes of a fellow geologist? Were editor or publisher of the *Zodiac* unimpressed by reader response to such solid science? If so, why did he not continue its publication elsewhere? In any case, what was evidently meant to be a series of articles ended as abruptly as it began, its initial number being its last.⁴

The work certainly starts expansively enough. It proceeds systematically, only to founder in mid-step. There can be no doubt that it helped bring attention to him as a geologist, at least of the work-horse type, apt at learning, capable of gathering information first-hand, willing (for a time) to become a pedestrian scholar to boot. While it seems unnecessary to quote the work in full, a few excerpts are justified. They show James Eights at work and we can perceive how his mind operated. Perhaps they will also give a hint of why he foundered. No attempt is made here to bring Eights's geological nomenclature up to date.

"A SYNOPSIS OF THE ROCKS OF THE STATE OF NEW-YORK

"The advantages which the State of New-York affords to the geological investigator, are truly without a parallel in this country. The well defined limits of each individual series of strata, as they successively emerge from beneath its surface, the various streams which every where traverse them, from its very centre to its confines, and whose waters may be traced in almost every direction in their passage towards the sea — the number, situation, and magnitude of its lakes, whose basins are deeply depressed in them, together with the facilities which the works of art present, for transporting the traveller from one portion of it to the other, freely offer, wherever they occur, the happiest opportunities that the scientific enquirer can reasonably expect or desire. Yet with all these advantages, the true nature of its rocks has never been distinctly defined. They certainly are equivalent to those of other countries, and the various treatises on Geology which have been published abroad, within the period of the last fifteen years, apply, with very slight exceptions, in a most admirable manner to the different series which compose its groups.⁵

"No inconsiderable portion of the surface of the State of New-York, is occupied by the cropping out of the different series of strata, which compose that magnificent carboniferous group, whose extent is over the greatest portion of the vast territory of the United States. Its eastern origin, is along the shores of the Hudson river, from whence it stretches out, in a nearly horizontal position, far away into the remote regions of the west, until it eventually becomes lost beneath the disintegrating fragments, that are so profusely strewed along the base of the Rocky Mountains. From the boundaries of Canada on the north, but few difficulties occur in tracing it almost, if not entirely, to the shores of the Mexican Gulf.

"So admirably distinct are the different series of rocks which compose the state, displayed over its surface, that should an intelligent traveller take his departure from the ele-

vated lands, any where along the Pennsylvania line, to the westward of the county of Broome, and pursue his course to that of St. Lawrence, on the river of that name, he will have ample cause to admire the manner in which he descends in regular succession, down a series of gigantic steps — first, the great coal measures; next, the carboniferous limestones; then, the old red sandstones; fourth, the grauwacke slates; and lastly the transition limestones, whose strata will be seen, terminating against the primitive ranges of the north, with their edges, in many places, elevated in a direction towards their summits — the intervening rocks being generally unseen.

"It may not be improper here to remark, that whenever the sandstones, grits or grauwackes occur, in any of these series, in a regular position, their superior portions are universally of the nature of breccia, or conglomerate, which, in descending, gradually become finer in their structure, until they terminate below, in fine grained arenaceous or grauwacke slates.

"It is my intention, at some future period, to put into proper form, the many facts which I have for several years been collecting from personal inspection, with a view to a complete description of the geology of the state, to be accompanied by the necessary sections, and correct figures of its numerous organic remains; but the time which must necessarily elapse before this can be accomplished, I am now convinced will be much greater than I anticipated. I have therefore, been induced in the mean time, to make public the following synopsis of the rocks of the State of New-York. In doing so, it is no more than justice to state that I have been altogether guided by the Manual of M. de la Beche, from the circumstance, that the descriptions contained therein, apply well to our strata, and more particularly, because the series of rocks of the state had already naturally arranged themselves agreeably to the same order.⁶

"Various species of the organic remains whose genera will be enumerated hereafter, are contained in my own collection, and also in that of the Albany Institute."

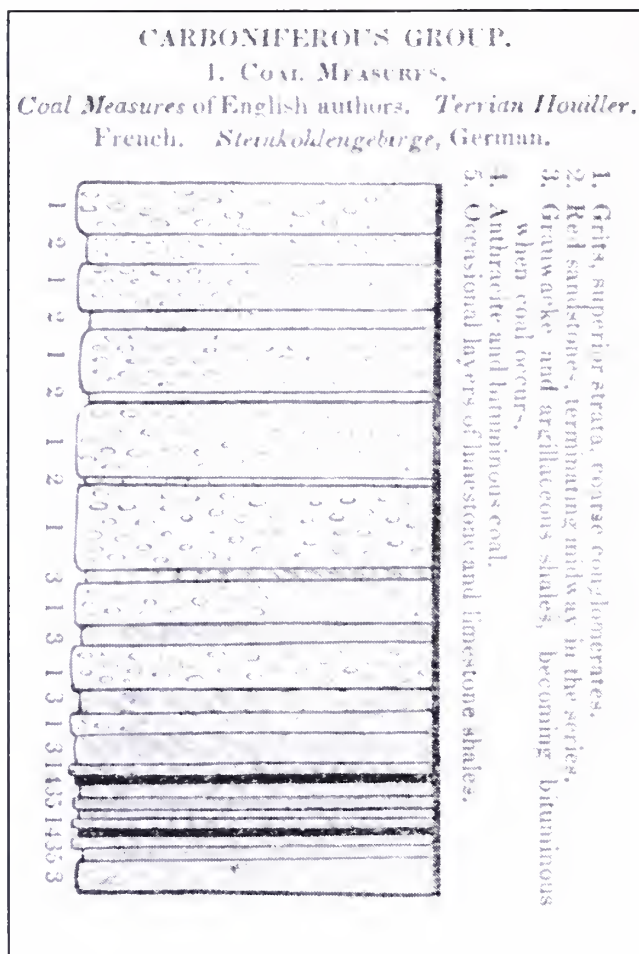


Figure 13.1. James Eights drawing to show arrangement of strata of Carboniferous age. Appeared in his "A synopsis of the rocks of the state of New York", *The Zodiac*, 1, page 27.

At this point, Eights launched into a detailed discussion of the CARBONIFEROUS GROUP — and never got beyond it. He probably meant to cover all rock series of the State in similar detail. It is illustrated by a diagrammatic section with the subtitle of "I. Coal Measures." Some of the succeeding paragraphs are here somewhat condensed.

"Strata of conglomerates, sandstones, and grits compose the upper portion of this series, whilst argillaceous shales, grauwacke shales, and bituminous shales predominate in the lower. These lower strata sometimes embrace layers of lime stones, and lime stone shales, whose characters correspond in a great degree with those of the adjacent lime stones, upon which the whole series repose; and also, extensive beds of anthracite, and bituminous coals.

"The minerals embraced in this series are not numerous, but some of them are of the utmost importance to our country. Those most commonly seen, are, carbonates of lime, sulphate of alumine and potash, quartz, mica, feldspar, chlorite, anthracite, bituminous and sulphurous coals, carbonate of copper, sulphuret of iron, argillaceous oxide of iron in nodules, and sulphate of iron.

"The organic remains contained in this series, are also the same as those which characterize the coal measures of other countries, belonging chiefly to the vegetable kingdom, and allied to those which are now known to be natives of a tropical climate. Various species of the following Genera, have with considerable accuracy been determined. *Stigmaria*, *Sphenophyllum*, *Annularia*, *Calamites*, *Neuropteris*, *Pecopteris*, *Lepidodendron*, *Sigillaria*. The other fossils, generally found in the grits, are, *Encrinus*, *Spirifer*, *Terebratula*, *Producta*, *Lingula*, *Inoceramus*, and *Orthocera*. In the Lime stone, and Lime stone shales, are observed, *Cyathophyllum*, *Astrea*, *Favosite*, *Encrinus*, *Spirifer*, *Producta*, *Inoceramus*, *Calymene*."

The coal measures, he thought, compose the "most recently indurated rocks" of New York and covered about one-third of the state. In Pennsylvania, this series includes the anthracite region to the east and the bituminous coal fields of the western parts of the state.

The greatest elevation of these so-called coal measures is to be found in the Catskills, "whose summits attain the altitude of three thousand eight hundred and four feet." To the west, upper layers seem to be eroded away, so elevations are not so great.

Most coal measure strata in New York are relatively undisturbed, in contrast to those of Pennsylvania's anthracite region, which are often "elevated...disrupted and contorted."

He considered the main ridge of the Alleghenies to divide Pennsylvania's anthracite from its bituminous strata; the line continues into New York toward Cayuga Lake. To the westward, "thin seams of bituminous coal are not unfrequently met with." Between that line and the Hudson, small amounts of anthracite are to be found. He did not, however, think that

New York would be found to have extensive beds of workable coal — a sound conclusion, however sketchy his reasons.

Strata of red sandstones of varying thickness are to be seen in upper layers of the mountains, distinguishable from the older red sandstones elsewhere by their organic remains.

Having thus established his nomenclature, he deemed “it somewhat necessary, in order to be properly understood, to insert with reference to the figures accompanying the engraved section of each series,” the equivalents from Eaton’s geological synopsis. Then, in the middle of his list of equivalents, the article ended with the words “To be continued” — and was heard of no more.⁸

Whatever the reason, Eights’s account of the rocks of New York did not thrive. That was not the end of James Eights’s interest in New York geology, however much he may have shied away from a systematic recounting of his knowledge of it. With the demise of “The naturalist’s every day book” at the end of the 1835 growing season (except for the belated publication of the already written May segment), Eights was in limbo. He began to be heard from again in January 1836, in “Notes of a pedestrian,” the product of his roving eye and busy pen for that period of time. It probably had, in faith, as much geology as the readers of the day were likely to find tolerable, leavened as it was by social, economic, and biological comments along the way.⁹

NOTES OF A PEDESTRIAN. PART 1

“Soon after leaving Albany, the shadows of night began to spread deeply over the face of nature, gradually obscuring all things from the sight. The day-light remained only sufficiently long to enable me to observe for a few miles along the shores, the transition clay slate here and there emerging from beneath the extensive beds of marly-clay and gravel, which so abundantly constitute the sides of the valley of the Hudson, at intervals, almost along its whole extent. The night, however, was clear and beautiful, with a light breeze playing gently over the waters from the northern quarter of the heav-

ens, whilst now and then a slight and transient glimmer of the aurora borealis was distinctly visible in the same direction. Meteors or shooting-stars were also not unfrequently streaming through the air above our heads, in directions as various as they were numerous; and although the shores were obscured by the gloom of night, the scenes on this noble river were by no means destitute of their peculiar interest, for the attention was constantly excited by the numerous lights which almost continually strewn along, on either side, and also from those of the steamers and vessels of nearly every other description, that so constantly navigate the stream.

“Our steamer, independent of the urbanity of those connected with her, and also her unusual speed, certainly exhibited advantages in a superior degree beyond any thing of the description that I had previously met with, and conspicuously among them were the comparative ease with which she passed along through the water, dividing it with a gentle agitation, and delivering it again from her counters with a freedom as great. She evidently possessed but in a slight degree that disagreeable jarring motion, so distinctly perceptible and which is so frequently the subject of lamentation with steam boat travellers on this river. It was nine o’clock when we reached the landing of Red Hook, and I was fortunate enough, through the politeness of some individuals whom I found on the wharf, to obtain an immediate and speedy passage to the village of Ulster, on the opposite shore.

“The village of Ulster [present-day Saugerties] is pleasantly situated on the western side of the Hudson, nearly opposite Clermont, the residence of the late chancellor Livingston. Only a small portion of it can be distinguished from the steamers in their passage along, in consequence of an irregularly elevated ridge of grauwacke that conceals it almost entirely from the sight, and through which the waters of the Esopus river have at some remote period, formed themselves a channal [!] in their course towards that stream. It is of a quite recent date, not having been much improved till within the period of the last eight or ten years. It now con-

tains about two thousand five hundred inhabitants, and wears very much the appearance of youth and vigour. The falls on the stream, at this place, give site to several manufacturing establishments, to which in fact the village owes its origin and growth. Iron, white lead, and paper are the principle articles produced, the former in some considerable quantities; but there is no novelty connected with it that would be of much interest, particularly to those who have visited these establishments elsewhere in various sections of our country. On applying for an admission into the iron manufactory in this place, I was most rudely repulsed by some one exercising 'a brief authority.' It is by such bores that the cause of science and the arts is often regarded and injured. The white lead produced here is by a new process, being an improvement on all former plans, and it is conducted on strictly chemical principles; the consequence is that a better article is obtained at a considerable saving of expense. This improvement in the manufacture of white lead has been effected by Col. Edward Clark, who, like most other inventors, is likely to reap only the bare reputation, while other individuals by playing on his credulity under the professions of friendship, will probably secure in the first instance, all the benefits; at least so speaks rumor.

"The paper mill is ingeniously contrived to produce from the pulp a continuous sheet of sized and dried paper, completely prepared for subdividing and printing. They manufacture about one hundred reams per day, and the whole establishment is owned and conducted by Henry Barclay, Esqr., who has his residence at the place, and to whom, in fact, it is chiefly indebted for its celebrity.

"There is also quite an extensive establishment for the manufacturing of axes, belonging to a company of gentlemen residing in the city of New-York, in which from one hundred and sixty and one hundred and seventy axes are daily made, and about forty men kept constantly employed. Besides these there is a chair factory and a brewery; the former preparing for market each day, about one hundred chairs —

the materials, with the exception of the bottoms, being furnished elsewhere in a finished state; the latter is on a rather contracted scale, furnishing but a comparatively small quantity of beer at each brewing. But notwithstanding the superior advantages this place possesses, there seems to be a discordance of interests among the inhabitants, which, beyond a doubt, tends greatly to retard its prosperity and growth."¹⁰

Here follows a detailed account of the topography, physiography, and geology of the lower Esopus in the neighborhood of Ulster. The interested reader is referred to the entire piece in Rittner's facsimile reprint of *The Zodiac*. I quote only a few entries of general interest.

"The minerals embraced in this formation are extremely rare, and as to organic remains, none were discovered." In this grauwacke slate and associated strata, he found one small example of anthracite: "but this circumstance is certainly by no means an evidence, nor even an indication, that this useful mineral in any considerable quantities, can ever be obtained at this place — sufficiently so as to render it an object of serious attention, as the true position of those strata which embrace the extensive beds of anthracite in Pennsylvania, and elsewhere, over the surface of the globe, is geologically some thousands of feet above the proper position of this grauwacke."

It is unnecessary to quote fully his detailed descriptions of the geological strata and their characteristics. Suffice it to say that J.W. Wells, a modern geologist, considers Eights "a keen observer, and his descriptions of the various formations allow them to be identified with considerable certainty."¹¹

In the limestone near the Hudson at Ulster, he found an abundance of fossils, and despite "the advanced state of the season, two of our most beautiful native plants were profusely in bloom every where, about in the crevices, not only of the limestones, but also in the fissures of the perpendicular cliffs of the grauwacke...the Hair-bell [harebell], (*campanula rotundifolia* of Linn:) and the Herb Robert (*geraneum robertianum* of Linneus.)"¹²

NOTES OF A PEDESTRIAN. PART 2

"In proceeding to the south, this ridge of lime stone gradually becomes much more elevated in appearance, until it wells out into an altitude of some considerable height, but at the same time, as it proceeds along, it still retains its peculiar characteristic of being elevated and depressed at different intervals. About two miles from the village, and but a short distance from where the road strikes this ridge, in situated a lime-kiln, at which place the workmen were industriously engaged in excavating the rock for the purpose of calcination; in doing so they accidentally came upon a fissure or vein, containing some small quantities of well characterized bituminous coal....But circumstances like this are by no means unusual in many of the strata, which comprise the extensive carboniferous series of limestones to which these layers belong....No good workable coal, to any great extent has ever yet been discovered in it." His advice: "under no consideration whatever...heedlessly...embark in any project of research for that useful mineral, without previously consulting some competent geologist, who by a few minutes investigation, would satisfactorily inform them that their labors would prove fruitless, and that their money would be expended in vain."¹³

"A short distance beyond the lime-kiln the road makes rather an abrupt turn to the right, through this ridge, down towards the bed of the Esopus river....It was here for the first time that I beheld the sheep laurel and mountain laurel (*Kalmia angustifolia* and *K. latifolia* of Linneus) thriving luxuriantly together, a thing quite uncommon, as the former is a native of moist sandy plains, and the latter an inhabitant of rocky, mountain districts; they were not in flower, for their period of blooming has long since passed, nor were any other species of plants that I could discover, save the delicate and hardy little harebell, whose beautiful purple flowers were now and then seen projecting from some sheltered and secluded recess among the rocks. Two beautiful ferns...were also exceedingly common, and in full fruit, growing from almost every crevice that could

any where be seen. It was here too, in moist and shady situations, that I detected several specimens of the painted snail (*Helix alternata* of Say)...not having yet retired to their winter retreats."¹⁴

"A little farther up the course of the stream, at the great falls, as they are termed in the town of Saugerties, and about three miles above the Village of Ulster, are romantically situated the white lead manufactory, and hermitage of Col. Edward Clark, and communicating with them is to be seen a very curious and unusual suspension bridge, extending from one shore of the river to the other; it is constructed altogether of iron wire, with the exception of a single layer of planks, and the few rests upon which they repose. At this place an excellent opportunity presents itself for observing these layers of limestone passing out from beneath a thick stratum of gritty clay slate, which forms the abruptly elevated hill for a mile or two along the western shore of the stream....Immediately after their appearance from beneath the slate, the strata of lime stone spread out almost horizontally for a short distance...to furnish the stream with a fine level floor over which to glide...and then, bending upward, they rapidly swell out into an eminence of some considerable height....On gaining this eminence and looking towards the west, a scene is displayed before the spectator, that for beauty and grandeur can scarcely be equalled in our country....The Catskill mountains, bold, lofty, and sublime, presenting an eastern front of mural precipices, and clothed in those austere habiliments so characteristic of the decline of the year; stretching away into the west, connect themselves with the elevated ranges of the Alleghany, to which they belong; hill rising beyond hill...Such was its aspect in the last month of autumn — what then must it be when all nature is in bloom?"

"It is here that Colonel Clark is the proprietor of very extensive and valuable water privileges, still remaining, it may with propriety be said, in an unimproved state. The place is sometimes designated by the name of 'the Great Falls,' but some of his facetious neighbors, probably the fairer portion, from the circum-

stance of his living in a state of single blessedness, have bestowed upon it the appellation of 'the Hermitage.'"¹⁵

Eights foresaw a grand future for this site, deriving from the permanency of its water supply, the stretch of falls spread out for a quarter of a mile, during which the stream descended some 80 feet. Since so little expense would be required "to apply its water to manufacturing purposes...I sincerely think...they bid fair at no distant period to render this place, the Lowell of the state of New-York."

Near this place, the Catskills attain their greatest altitude. Eights pays particular attention to the geology of the area, listing minerals, peculiarities of physiography and fossils of each formation. In one place, he describes a limestone formation that lies upon one of gritty clay-slate, the latter then forming a plain that slopes to the Esopus. "This plain is covered principally by a forest composed chiefly of chesnut, beach [his spellings], and maple, occasionally interspersed with hemlock, and it was along the edges of these woods that I beheld in full flower, several specimens of the delicate little venus' pride (*Houstonia coerulea* of Linn.) This being one of our earliest flowers in spring, it consequently has experienced two seasons of bloom in the year, a curious circumstance, which can only be attributed to the unusual mildness of the atmosphere at this advanced stage of autumn."¹⁶

One meadow in this vicinity, Eights heard, was "much infested by the copper-head snake, which, whenever the first chills of autumn appear, retires to its den among the numerous cleavages which these limestones every where present, and there dozes away the hours in a state of torpor, until the genial warmth of the returning spring, again revives it into action. It is fully as venomous as the rattle snake, and I was informed that during the preceding summer, a horse...was so severely bitten by several, that he survived but a brief space of time."

He thought it possible to find locally marbles as ornamental as those imported from abroad: "We have no reason yet to believe, that Nature has been less lavish of her favors in this country, than she has in Ireland, or that of any other spot on the surface of the globe."

One layer of limestone he found unusual: "the peculiar sonorous sound which the loose fragments give out upon being agitated in the slightest degree; it is by no means dissimilar to that produced by a number of broken pieces of pot metal, when shaken; the mere walking over them easily affects [effects] it, and I have no knowledge of any other limestone in the state, that at all possesses this singular property."

At one rocky outcropping of grauwacke slate, "I observed a number of specimens of the beautiful little scarlet pimpernel...in full flower."¹⁷

There follows at the end of this article "A geological section from the summit of the Catskill Mountain to the Hudson River, through the town of Glasco." This section, reproduced by J.W. Wells in his study of the history of the Devonian formations of New York, is accounted by him as "broadly correct as understood today, but does not show the great discordance between the older Paleozoic rocks (A) and the Devonian limestones (B)."¹⁸

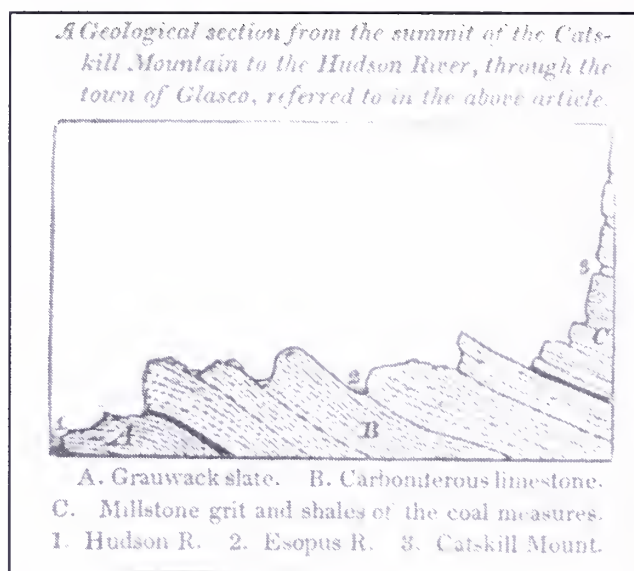


Figure 13.2. James Eights, "Notes of a pedestrian," number 2, *The Zodiac*, volume 1, page 116.

NOTES OF A PEDESTRIAN. PART 3

"In approaching the village of Kingston, from the north, the surrounding country gradually becomes more level...until you reach the

plain upon which it is situated, and which is composed principally of marly clay and gravel, over-layed by the yellow sand. The village presents quite an aged aspect, rendered so in a great measure by the number of ancient buildings of stone which it yet contains, and more particularly by the sad looking ruins of the venerable edifice which for such a great length of time, had been appropriated as a sanctuary of worship by the fathers of the present generation of its neighboring inhabitants; but here I regret that I am constrained to add, by a barbarity wholly unworthy the enlightened age in which we live, this remnant of American antiquity has been reduced to its present forlorn condition, merely to give place to a more modern structure without architectural chasteness, and alike destitute of either taste or comeliness, — the hands of the law, I think, should always be stretched out for the protection of these landmarks of other days.”¹⁹

A short distance to the eastward of Kingston, the road is crossed by an elevated ridge of limestone that is but little higher than “the stratum from whence the celebrated hydraulic cement is obtained.”

He proceeded from Kingston landing to the entrance of the Hudson and Delaware Canal; the grauwacke formation was frequently in view due to recent blasting. He found a building which, “from its peculiar structure, I should most readily conclude was intended for the manufacturing of Pyroligneous acid or vinegar; but the individuals whom I saw at the place seemed to exercise no small degree of mystery on the occasion of my visit; a circumstance totally unnecessary, as all the improvements on those subjects up to a very recent date have been divulged, and the processes by which they may be obtained made known to the public through the avenues of various scientific journals from abroad, as well as in the pages of some of our own.” He then laid bare all the technical information — he said — needed to set up your own distilling plant.

A lime kiln, claiming to use a local product, was evident nearby but darkness prevented his learning anything more of its geological nature.

“The Hudson and Delaware canal has its eastern termination in the Rondout creek,

about three miles from Kingston, at a place called Eddyville, formerly known as the Esopus strand, from whence a small steamer plys almost constantly to the landing below, for the purpose of towing the boats freighted with the company’s coal to that place, ninety-five thousand tons of which I am informed it is their calculation to receive previous to the ordinary period for the navigation of the river to cease. Large quantities of lumber and cord wood are also yearly borne on the waters of this canal, intended chiefly for the market of New-York, and independent of coal crafts, about twenty-five sloops are kept continuously in employ for transporting the various products from the Rondout creek, to that city. The number of boats kept in active employment on the canal amounts in all to nearly four hundred.”^{19A}

The complex geological setting of Eddyville is described, as are the settings of the canal through lock number six to the village of Rosendale, six miles from the eastern termination. Some mile or two west of Rosendale, kilns have been erected for the purpose of calcining the native rocks, once they are broken into pieces by the stone mill, into hydraulic cement.

At the High (or Great) Falls about ten miles west of Eddyville, Eights suggested that exploration might result in the discovery of salt or gypsum. The waterfalls themselves were in a relatively undeveloped state, “giving origin only as yet, to two woollen manufactories, a tannery, and some few mills.”

A short distance above the High Falls, the grits of the grauwacke shales supply “the celebrated mill-stones of the county of Ulster.” “It was also, skirting the shores of the Rondout creek, at this place, that I first beheld the highly ornamental evergreen shrub, the American Rose-bay, (*Rhododendron maximum* of Linnaeus,) abounding in the greatest profusion; it was not in flower, for its season of bloom is in the earlier parts of the summer, however, the beauty of its foliage will always render it an object of delight to the discriminating eye of taste, and should justly entitle it, at all times, to a conspicuous situation in the gardens of such as take enjoyment in cultivating the vegetable portion of nature’s productions.”

He found only two freshwater mussels, even with diligent search, but painted tortoises (now *Chrysemys picta*) "were extremely common, basking in the sunbeams, on the flat surface of stones and logs, which, when approached, dropped suddenly into the water, and soon concealed themselves from the sight." He disagreed with the naturalist who thought that turtle restricted to ponds, for he often found them in running water.

NOTES OF A PEDESTRIAN. PART 4

"In proceeding onward to the Delaware river, the lofty ranges which bound this widely extended valley on either side, are seen gradually to converge, until after passing the confines of the state of New-York, where they approach each other so near, as barely to admit a passage to that turbulent stream, in its progress along." Eights then described the ridges to the right, the "Blue Hills," so called because "of the beautiful azure hues they exhibit in the distance, when no clouds obscure them from the sight." He then refers to the Shawangunk range that rises from the edge of the canal and soon attains an impressive eminence; there, too, on the western slopes, strata become more and more upright, "until they assume a position as nearly vertical, as they are fairly capable of being placed." Where there is an ample supply of soil, a heavy growth of forest trees is found, along with a luxuriant display of mosses and lichens. From limestone strata "good lime is...manufactured...by the neighboring inhabitants."²⁰

"About thirty-five miles from Eddyville, at a place containing a few scattered dwellings, dignified by the appellation of Frantzville, I was informed that anthracite of a good quality had been discovered a short time previous, at no great distance among the western hills." His examination suggested that the discovery was to be expected and he maintained that workable amounts of anthracite would not be found in the region.

"It is near this place that an extensive sphagnous swamp has its commencement, and continues, almost uninterruptedly, to Port Jervis, a distance of about twenty-five miles,

forming a principal portion of the floor of the valley, and is for the most part completely covered with wild and dense forests, consisting principally of the following trees and shrubs." He then lists some dozen species of woody plants with both common and Latin names — the former generally more useful than the latter for certain identification today: Poison ash (sumac), red maple, alder, black birch, button wood (or sycamore, perhaps two species, yellow and white), black oak, swamp white oak, chestnut, hoop ash (the single exception to my statement: he means hackberry), hackmatack (larch), black spruce, white cedar. "Wherever these forest trees are not so dense, openings in the rich sphagnum exhibit numerous pools of water, tinged of a dingy hue, which abound with several fine species of tortoises...the beautiful painted tortoise...the spotted tortoise...and also what is termed in the northern states the snapping turtle....This last named species, at this place, grows to an enormous extent: the superior shell of one that I saw, measured nearly two feet in length, and I was informed that they were not unfrequently obtained far exceeding that in their various dimensions. Scattered at various intervals through this morass, and also along the adjoining plain, are occasionally to be seen arable patches of fertile lands; many of which are still occupied by ancient Indian orchards, containing venerable apple trees, which the disintegrating hand of time has not yet entirely obliterated, — furnishing sad memorials of a once powerful and warlike tribe, which, for an unknown space of time, held undisputed sway over this peaceful vale."²¹

"The canal, from Westbrookville to Port Jervis, a distance of about twenty-two miles, skirts the base of the western range of hills, and, in some instances, it is excavated from their shales. From among these shales...it is that the beautiful flags [flagstones] are obtained in such quantities, to be transported on the waters of the canal, to the Hudson river, and there again shipped to the appropriate markets."

"Port Jervis is beautifully situated, at a distance of sixty miles from the Hudson river, and just at the great bend of the Delaware....It is of a

quite recent date...it possesses an excellent water privilege, upon which are already placed a grist-mill, one for the grinding of plaster, and also a building for the manufacturing of oil. It is but a short distance from this place that the contemplated state road is laid out to pass through the blue ridge."

"The canal to this place is by no means in as fair a condition as the amount of transportation upon its waters necessarily requires: the banks and locks, are, in many places, in a wretched state. When constructed, it had a regular width of thirty-six feet, and an average depth of four; but at the present time, the sloping surfaces of its banks have by degrees, here and there, settled in, so that laden boats are unable to pass each other, and frequently become stranded, when they are compelled to discharge a portion of their cargoes on the shore, in order once again to float; every few miles can plainly furnish evidences of this fact, from the quantities of anthracite to be seen distributed in heaps as you proceed along. Many of the stone locks are also much out of repair, freely discharging as large a quantity of water, through the numerous fissures in the side walls, as can readily obtain a passage by the regular flood gates. In all works of this nature, this is a sad piece of negligence; small injuries should always be attended to immediately on their discovery."

"Within the last week, the common passenger pigeons...have been exceedingly numerous, covering the whole heavens in widely spreading flocks, both at the early and latter parts of the day, flying in a direction towards the north; no doubt on their passage to those extensive forests of beech, that so beautifully skirt the base of the Catskill mountains; the mast which has been so abundantly produced during the last season, being fully capable of furnishing them with a rich repast of the food that they so peculiarly relish. The inhabitants of the vicinity have all been on the alert, to ensnare them in their artfully spread nets; immense numbers of them are daily thus obtained. The direction of their flight, so near to the close of the year, is doubtless an indication of a further continuance of the mild pleasant weather we at present experience."²²

"After leaving Port Jervis the canal turns abruptly into the blue ridge, and follows the course of the Delaware river through it, for the distance of about fifteen miles; winding gracefully along the base of a perpendicular cliff, which rises some hundreds of feet in the air." Near the mountain house of Pine Orchard, "the hills appear to have had the singular disposition of arranging themselves in magnificent groups, each individual one that composes them, assuming the forms of stupendous pyramids. which, in many places, exhibit some of the wildest, and most picturesque scenery that the eye delights to witness."

NOTES OF A PEDESTRIAN. PART 5

"After crossing the Delaware river, the canal skirts the base of the hills along the northern shore of the Lackawaxen creek, until it reaches its western point of termination, at the village of Honesdale, a distance of about thirty-three miles. This is certainly a most beautiful and well constructed portion of the work; much greater pains appear to have been bestowed upon the building of the locks, and, notwithstanding that their sidewalls are faced with wood, they surely exhibit a much better aspect, and, I think, that they will doubtlessly prove far more durable than any that I beheld to the eastward of the blue ridge."²³

"The scenery along this distance presents the same general appearance as that previously seen, since entering this mountain ridge."..."In passing along through these hills, the attention of the traveller is continually excited by the immense quantities of a beautiful species of *usnea*, which is every where to be seen, covering the dark branches of the trees of the forest, hanging far below them in ample, cinerous-green locks, or, in graceful festoons, and which gives an effect to the scene that is at once peculiarly hoary, and wild in the extreme. This fine lichen is reputed by botanists to be extremely slow in its growth, requiring many years for it to ripen into maturity, a fact which I consider in no small degree exaggerated, for in progressing along, repeated opportunities afforded themselves for beholding it in dense masses, adher-

ing to the branches of apple trees in the orchards about, which, from the diminutive size and youthful appearance, with certainty, never could exceed beyond the age of five years."

"The village of Honesdale is situated directly at the junction of the canal with the rail-road to Carbondale, a distance of one hundred and eight miles from the Hudson river, and if anything, has rather a pleasant position, although it still exhibits all the fresh appearances of having but recently been extricated from the heavy masses of forest, by which it is surrounded. Its population at present is about four hundred inhabitants, and they are slowly on the increase; the houses are very much scattered, which is most generally the case in all newly established villages, where individual interests are striving with one another for the ascendancy. It contains two buildings for public worship, an Episcopalian, and one for Methodists; this latter denomination seems greatly to prevail in this region of country. There are also an academy, a scythe and axe manufactory, and one for leather. The neighboring hills readily yield an abundance of lumber of an excellent quality, large quantities of which are daily floated to their respective markets, either by way of the Hudson and Delaware canal to New-York, or down the Lackawaxen and Delaware river to the city of Philadelphia, and elsewhere along the course of that stream.

"The Delaware and Hudson canal company's rail-road has been constructed principally for the purpose of conveying the anthracite from the mines of Carbondale to the canal, a distance of sixteen and a half miles: its passage is over a country exceedingly rugged, and mountainous, sometimes being excavated from the mill-stone grits and shales, and at others, stretching across ravines of no inconsiderable width, elevated on timber stanchions, twenty or more feet in height, most readily impressing the mind of an individual, unused to this mode of conveyance, with sensations of fear, by the fragile appearance it presents to his view. For the first twelve and a half miles, it rises gradually by a series of variously inclined planes, until it attains its greatest elevation, near the summit of the Moosic mountains, an altitude of nine hun-

dred and twelve feet above its base, and one thousand eight hundred and seventy-eight feet above the ordinary tide water level. In the remaining four miles it, by the same means, has a rapid and rather abrupt descent of nine hundred perpendicular feet, to the bottom of Carbondale valley, immediately in the vicinity of the mines.

"From the village of Carbondale to the summit level, on the Moosic mountains, the ladened carriages are drawn up the different inclinations, by five stationary steam engines, which, for the most part are kept constantly in operation, and from thence, in descending towards the canal, three inclined planes occur at distinct intervals, though of no very considerable extent, down the slope of which the loaded wagons are made use of for returning those which have become unladen; and over a gentle declivity, extending a distance of six miles, they descend in a most beautiful manner by their gravity alone; but in returning, horse-power is necessarily employed. Further on, and terminating the road in that direction, is a slight inclination of four miles, upon which horses are made use of for transporting the carriages in either direction.

"This rail-road is a temporary structure; however, from increase of business transacted upon it, I am induced to believe, that in a short space of time, the company will be enabled to render it far more permanent; some valuable improvements have already been made in several places, by Mr. Archibald, their intelligent and enterprising engineer; but much more still remains to be done. The full amount of transportation upon this road for the present year, (1835) has been ninety thousand tons of anthracite, ten millions [!] feet of lumber, and other articles, amounting in all, to something over one hundred thousand tons of transit.

"The face of the country through which this rail-road pursues its tortuous course is wild and dreary in the extreme, being principally made up of alternate hills and dales, constructed of harsh and cragged rocks, covered for the most part all over by dense forests of hemlock, beech and cherry, with some maples and ash. The soil I should suppose would not admit of any high

degree of improvement, in consequence of its being composed chiefly of the disintegrating particles of the mill-stone grits and shales, which, containing no lime, yields but a meagre earth to be susceptible of much profitable cultivation; the only richness it possesses, being derived almost exclusively from the decomposition of the heavier vegetables, which so luxuriantly thrive throughout this region of country. Many of those hardy shrubs and under-shrubs, which are comprised in the natural order Ericæ of Linneus, are also very abundant[;] those which displayed themselves in the most conspicuous manner, though not in bloom, were the leather-leaf...bear berry...trailing arbutus...spicy winter laurel [!]....mountain green [!]....and the beautiful American rose-bay...."²⁴

The village of Carbondale is described: It lies about midway in the valley of Lackawanna, near the company's extensive anthracite mines; this is considered near the northern edge of beds of anthracite. The village has some 2,500 inhabitants and their rude cottages occupy the slight elevations nearby.

At this point, I intrude a matter of some interest not touched upon by James Eights. A charter to build the Delaware and Hudson Canal was granted by the State Legislature in 1823. Ground was broken two years later on a canal from Rondout, on the Hudson, to Honesdale, Pennsylvania. It was completed in 1828. The Canal was primarily used for transporting coal mined near Carbondale. It was carried over a gravity railroad, begun in 1827 and completed in 1829. "It was on this railroad that the 'Stourbridge Lion,' the first locomotive engine that ever turned a wheel on any railroad on this continent, was used. It was imported from England by the Delaware and Hudson Canal Company, taken by canal-boat from New York to Carbondale, Pa., and the first trip made August 8, 1829, from Honesdale to Seeleyville and return." This matter was ignored by Eights. It is true that the "Lion" did not roar for long. After two trips, the historic locomotive was withdrawn in favor of horse and mule power, the track being found incapable of sustaining train traffic. Still, it is a neat story!²⁵

NOTES OF A PEDESTRIAN. PART 6

"One of the nearest positions to the confines of the state of New-York, where the great coal measures, as they are termed by all foreign geologists, occur, is in the beautiful valley of Lackawanna, and here they are found to embrace all those extensive beds of anthracite that are now the property of the Delaware Canal Company, by whom the most considerable of the number is at this present time worked extensively."²⁶

"This valley derives the appellation it bears from the Indian words, '*Lechaw*' and '*hanna*,' which signify the meeting of two streams. It extends in a south-west direction, with an average width from about two to four miles, from the village of Carbondale until it becomes lost in the adjoining valley of Wyoming, at the village of Pittston, a distance of twenty-three miles. On either side it is bounded by lofty ranges of wild and densely wooded hills, which, however, now and then, present to the eye some arable patches of finely cultivated fields. The ridge to the eastward has been designated as the Moosic mountain, and forms the dividing range of the waters of the Delaware and Susquehanna rivers, whilst that in the opposite direction has not yet received a name. Through the centre of this valley, a fine stream of water pursues a serpentine course, winding along in a most graceful manner, throughout its whole extent, until it discharges itself into the Susquehanna river, the meeting with which, first gave origin to the name that it and the valley through which it at present flows, possesses."

"The principal vegetation which clothes the surfaces of the valley of Lackawanna and its neighboring hills is, beech, maple, ash, cherry, hemlock, and in several places, pine, oak, hickory and chestnut [common names alone supplied]; consequently they are fully capable of affording an abundance of the finest lumber...which may...be either floated down the Susquehanna, or else transported by the railroad and canal to the waters of the Hudson river."

The final paragraphs of this segment are taken up with an elaborate calculation concern-

ing the equivalence of various geological strata and — again — how adventurers should not expect to find “the true coal measures” in the state of New York.

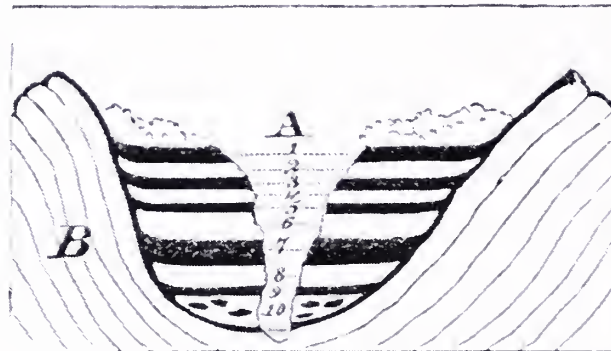
NOTES OF A PEDESTRIAN. PART 7

“The coal measures, occupying the Lackawanna valley throughout nearly its whole extent, may, with strict propriety, be considered as varying from between two to three hundred feet in thickness, and are composed of numerous strata of anthracite, conglomerate sandstone and shales, in repeated alternations: separated from the millstone grit and shales upon which they rest, by a stratum, consisting principally of nodular clay oxide of iron. — These strata repose one upon the other in a conformable position, stretching across the whole width of the valley, in nearly a horizontal manner, until their terminating edges touch the sloping sides of the mountain ranges which define its limits in that direction.”²⁷

Henceforth, Eights’s description becomes detailed and specific, most of which is ignored here. His diagram shows clearly that the coal beds are of limited horizontal extent, even though “many intelligent individuals, without the necessary scrutinizing investigations” have been led to believe that they are of much greater extent, “that they extend through the centre of the elevated hills.” “This is certainly a great mistake, and I venture the assertion, that neither it [anthracite], nor the bituminous coal, to any considerable amount, exists in any of the strata which compose its loftiest ranges of hills, but is exclusively confined to the coal measures, which are geologically superior to them, although reposing far beneath their summits, in the bosom of the valley.”

He then proceeds to illustrate how the coal-bearing strata are arranged, referring to his diagrammatic section in a step-by-step explanation. In the section, “A” is the valley of the Lackawanna River that has cut through the entire series of coal-bearing strata. “B” is the Moosic Mountains, composed of millstone grit and shales, whose strata “bend downward and constitute the immediate floor of the coal measures,

A geological section of the coal measures in the Lackawanna valley, showing also the manner in which they repose upon the series of millstone grit and shales



A. The Lackawanna river, which in pursuing its course through the centre of the valley until it mingles its waters with those of the Susquehanna, cuts down, through all the various strata which compose the coal measures, to the millstone grit and shales, which underlays them, and exhibits in many places their outcropping edges in a most beautiful manner.

B. The Moosic mountains being wholly composed of the millstone grit and shales, the strata of which bend downward and constitute the immediate floor of the coal measures, then ascending again, in like manner, they form the elevated range of hills on the opposite side of the valley.

Figure 13.3. James Eights, “Notes of a pedestrian,” number 7, *The Zodiac*, volume 2, page 8.

then ascending again, in like manner, they form the elevated range of hills on the opposite side of the valley.” He then accounts for ten coal-bearing strata, giving measurements, so far as he was able to make them, accompanying fossils, and so on.

“Beneath this the stream exposes to view the superior coarse conglomerate of the underlying series of millstone grit and shales, the same as that which has already been described as rising upward and constituting the summits of the neighboring ranges of hills, which enclose the valley on either side.”

The only stratum of anthracite then being worked was layer No. 7, at Carbondale, 23 feet in thickness. There were nine principal

entrances, which accommodated as many small railroads that “branch out in every direction to the various parts of the layer.” “The whole extent of these roads is at present estimated at about six miles.”

He detected gentle undulations in the layer and noted that there were fissures, running north–south and east–west, dividing it into large rhombic tables, a phenomenon that he had observed in the underlying strata of grit, shales, and limestones.

Parts of the mine on a level with the river may contain water, “to remove which the company have been at the expense of erecting a series of most admirably constructed pumps, which, whenever necessary, are kept in constant operation by an over-shot wheel, the water for this purpose being supplied by the stream itself. In some other of the openings, however, a single horse power is applied, which proves amply sufficient.”

Then, at the end of his final part of “Notes of a pedestrian,” we have his shot, mentioned by Joseph Henry’s Albany correspondent Ten Eyck, meant “to blow Silliman and Hildreth out of the water.”

“The general belief entertained among the geologists of the present day is, that anthracite and coal have had their origin from vegetables; a supposition which I have a very great inclination to question. The fact of vegetable organic remains, of a tropical character, having always been found accompanying these useful minerals, wherever they occur in any considerable quantities, is by no means a conclusive evidence, to my mind, that they thus originated; for these plants might just as well have grown upon the soil which the strata supported, as our more modern ones do on the surface of a marsh or swamp. If these minerals ever did originate from vegetable substances, the earth at that remote period must have been much more densely covered with them than it is in our present day and generation; for I am well convinced that all the vegetation which now clothes the surface of the globe is totally insufficient to furnish sufficient materials to produce the extensive beds which are embraced in the state of Pennsylvania alone. I can see no reason

why anthracite and coal could not have been formed in the state in which it now occurs, as the beds of chalk and various other mineral substances in nature.”

This ends James Eights’s productive relationship with *The Zodiac*. I have already given reasons why five articles signed “E.” that concern a supposed tour in France and Scotland were *not* by James Eights. I suspect they were written by whoever wrote an urbane article entitled “Scenes in Paris” (said to be by “a young gentleman of Albany”) that appeared in the *Argus* in 1832.²⁸

One final item demands attention, before we see Eights off on loftier endeavors in the latter end of the 1830s. One may suspect that it was prepared with the hope it would appear in pages of *The Zodiac*. It was on a subject that Eights found to his liking and one to which he returned from time to time — the history of Albany. The work was entitled *Reminiscences of the City of Albany*. At least two editions appeared in the year 1836, the presumed original being without name of printer and evidently privately printed; the second edition (“Copyright secured”) was published by A.J. Bready, a printer of Albany, and probably was a commercial venture. The work is not Eights’s reminiscences but a history of the Dutch in Albany. Contents of the two editions show some differences, in addition to variation in type-bed size and number of pages. Both had a folding engraved plate of a drawing by Eights showing the Albany waterfront from across the Hudson.²⁹

The following transcription is a faithful copy of what I term the private, fuller edition. Quotation marks do not enclose paragraphs; when they occur they are his own. Round brackets are his own; I have introduced material into the text by means of square brackets. His occasional square brackets I have replaced with braces ({}). Footnotes are put directly in the text within square brackets. Except that the second edition ends without telling the early history of Rensselaerwyck (the final two and a quarter pages of the first edition), differences between the editions are minor: mostly a few corrected (or at least differently spelled) words, with far fewer italicized words in the second edition.

REMINISCENCES OF THE CITY OF ALBANY

ALBANY, was thus named, in the year 1664, in honor of James, Duke of York and Albany, who afterwards mounted the throne of England, as James II. Its original Indian name was *Scho-negh-ta-da*, signifying "*the end of the pine woods*;" and this name, for the same reason, was applied by the aborigines to the site of the City of Schenectady, where it is yet retained with a slight variation in the orthography. The Dutch named Albany "*Beverwyck*," and afterwards "*Williamstadt*." It was never known as Fort Orange or Urania, as has been asserted; but the fort only was called Fort Orange. By some this place was named in derision, "*De Fouck*" or *The Net*, in allusion to the supposed *grasping* or *catching* propensity of its inhabitants, in the accumulation of wealth. The shores of Albany never knew the footsteps of a *white man* till the month of September, in the year 1610, when Henrick Chrystyance, who was sent up the river by Henry Hudson, to reconnoitre, or explore the country, first landed here, and as far as can be learned from tradition and some documentary evidence, somewhere in the vicinity of the present North Market. In that or the succeeding year, a party of the Dutch built a block house on the north point of *Marte Girritse's* or *Boyd's* Island, a short distance below the Albany ferry. This house was erected for a two-fold purpose, first to open a trade with the Indians in furs, and next to secure themselves against any sudden attack of the savages. But it was soon demolished, for the next spring's freshet and ice swept the whole of it away. This party then chose a hill subsequently called *Kiddenhooghten* [footnote: *Kiddenhooghten*, or *Kidd's heights* or *hill*, received that name about the year 1701, and according to tradition, in memory of the pirate Kidd, so celebrated "in song and story," who it was supposed concealed much of his ill-gotten treasure in its vicinity. It is however doubted whether Kidd ascended the Hudson river as far as Albany.], within two miles of Albany, for the erection of another trading-house. The Indians called this hill *Ta-wass-a-gun-shee* or the *Look-out-Hill*. Not

long afterwards, however, this post was abandoned, and a more convenient one selected. The spot thus chosen was in the vicinity of the house now called "*Fort Orange Hotel*," in South Market-street. The Dutch there erected a fort, "*mounting eight stone-pieces*" [footnote: According to Mr. Vander Kempt, the translator of our Dutch Records, they were called "*Stien-gestuken*," or stone pieces, because they were loaded with *stone* instead of *iron ball*. They were formed of large and strong iron bars, longitudinally laid, and bound with iron hoops, and were of immense calibre.], and called it "*Fort Orange*."

Till after the year 1625, the Dutch did not contemplate making any permanent settlements in this state. They merely visited the country in the autumn and winter, with a view to the fur trade with the Indians, returning in the spring to Holland or "*Vader-landt*." But in that year, the Dutch W.I. Co. first entertained the idea of *Colonizing* their newly discovered territories in America; and accordingly offered large appropriations of land to such families as should "*settle*" in their Colony of New-Netherlands. This soon brought many over, and from that period till 1635, several of our most respectable Dutch families arrived. Among them were the ancestors of the Van Schelluyne, Quackenboss, Lansing, Bleeker, Van Ness, Pruyn, Van Woert, Wendell, Van Eps and Van Rensselaer families. It does not appear that any stone or brick building was erected here (the fort excepted) until the year 1647, when, according to a letter from "*Commissary De la Montagnie*" to the Dutch Governor at New Amsterdam {New-York} a *stone building* was erected near the fort, and he complains of "*the enormous libations*" poured out on the occasion of celebrating its completion; "*no less (he says) than eight ankers of brandy were consumed*." [Footnote: An *anker* contains 16 gallons. At this period gin is not named as being in use; nor until the year 1652 does it appear to have been introduced here among the Dutch.] No doubt the whole garrison partook of the festivity. It is believed that the stone building recently taken down, and which stood at the corner south of the theatre in South Pearl-street, was the stone house alluded

to by De la Montagnie. About 96 years ago, Albany was protected against sudden irruptions from the Indians, by the erection of *Palisades*, [footnote: These *palisades* consisted of large pieces of timber in close contact with each other, driven end-wise into the ground, and *gates* or openings were made at suitable intervals, which were closed at night. One was called the "North Gate," and that name, till recently, was applied to that part of the city now called "the fifth ward." These palisades surrounded but a small part of the city.] (sometimes, though improperly, called *Stockades* or *Stockadoes*,) part of the remains of which were visible within the last thirty years. Barrack (now Chapel) street was the principle place for business. Here the Indians congregated with their furs, and here the Dutch attended "with their guilders, their blankets, brandy, powder and shot." Although we cannot vouch for the truth of Dr. Franklin's anecdote, that in those early days, a Dutchman's *hand*, placed in one scale against a quantity of fur in the other, was computed at *one pound*, and his *foot* at *two*, yet doubtless many frauds were practised upon the natives in their intercourse and trade with the Dutch. The government of the city was extremely rigid, and often times cruel. It bore the character more of a *military* despotism, than that of an internal or *civil* police — heavy penalties were imposed for the least infraction of the laws for regulating trade with the Indians, and many families consequently ruined. This severity drove some of the "traders" to the Schenectady flats, where they intercepted a considerable portion of the fur on its way to Albany, and which occasioned for many years the most bitter animosities between the inhabitants of the two places. The circulating medium, or currency, then principally in use, was *seawant* [footnote: *Seawant* was formed of the oyster or clam-shell, and was either of a blue or purple color, or white. The former was the most valuable, being usually worth five times more than the white.].

The amusements of the Dutch were chiefly sleigh-riding, *Pinxter* and *Paas* holidays and wedding festivities called "Maughet de Bruyt." To these may be added, strange as it may seem,

funeral festivities. *Pinxter* was celebrated during the whitsuntide holidays, and usually continued three or four days, during which booth or tents were erected for furnishing refreshment, &c. and the dance called "the totaw," was a great favorite among the inhabitants. The dance was performed by the *blacks* of both sexes, and somewhat resembled the *Spanish Fandango*. This holiday has fallen into disuse within the last 15 or 20 years, but many of our inhabitants still remember our celebrated "King Charles," who, with his red uniform, black shining face, tall figure, and commanding attitude, made this his *gala-day*, and attracted universal attention. *Paas*, or Easter holidays, was celebrated by the breaking, or (as the Dutch phrase was) "butsing" of eggs, boiled and colored in a decoction of log-wood; and "*Manghet de bruyt, ghoe cookies outet*," [footnote: We have not at present a Dutch Dictionary at hand, to give a translation of these words. We believe they signify "Happy bride, throw out cakes."] was the clamorous [!] and reiterated cry of an assemblage of men and boys in the evening, about the door of a house where a wedding had been solemnized, and woe betide the windows, if the happy bridegroom did not cause cakes and apples to be distributed in great abundance among the crowd. The *funeral ceremonies* were very expensive, and usually attended by hundreds. Spiced wines, and "doode cook," (or *dead cake*) were plentifully used, and pipes and tobacco were added to these refreshments, till clouds of smoke involved the whole company in almost Cimmerian darkness.³⁰

Although the Dutch of Beaverwyck had been proverbially charged with an inordinate love of gain, yet their Records demonstrate that they were not indifferent to the more important matters of religion.

Attached from education and principle to the doctrines and faith of the *Reformed* church, and firmly believing in the unerring wisdom of the Synod of Dort, and, that, next to the Bible, that Synod had established doctrines, entitled to unqualified veneration and obedience, they held in abhorrence all who entertained different opinions from them. That they should possess

this feeling most intensely against the Roman Catholics was not indeed wonderful.

The wars between Holland and Spain were yet fresh in their recollection, and the cruelties and oppressions which their ancestors had experienced in those contests, rankled in their bosoms, and made them cling the closer to the religion of their fathers. But at that early period there were none or but few Roman Catholics in the Colony against whom they could direct their resentments. Yet, of Jews, Quakers and Lutherans, (and they were all considered by the Dutch as *Dissenters*, or rather *heretics*,) there was a considerable number, particularly in New Amsterdam, {New York} for we find that as early as January, 1656, the Jews were forbidden, under severe penalties, from "trading" at Beaverwyck. In 1658, the governor and council by another edict declared that "*for the honor of God,*" the reverend Johannis Erasmus Gottewater, a *Lutheran* minister, *should leave the colony*. In the same year likewise a cruel and absurd prosecution was carried on against the *Quakers* on Long Island, where some of the families and connexions of the Townsends, and others, had "abetted and harbored" a number of "*that abominable sect,*" (for so they were named in the proceedings of the Governor and council.) Several of them were imprisoned and banished, and a few having appeared before the Governor "with their heads covered," the sheriff was ordered "to take them *immediately* to Communipaw where they came from." But these weak and wicked persecutions did not long continue. A stop was put to them as soon as the Dutch West India Company in Holland were apprised of these proceedings, and the Jews, Quakers and Lutherans enjoyed for a season repose from their persecutors. Nay, so liberal and enlightened had the Governor and council become, from the merited rebuke given them by the D. W. Ind. Co. that even the *Jews*, the most odious of all these sects, were admitted to the rights of "*small Citizenship*" [footnote: Rather "*Lesser or inferior citizenship,*" which conferred the right of holding and transferring property, but not of trading without special license. "*Great citizenship*" conferred every political and civil right.]. Ministers of the Reformed

religion were regularly sent from Holland to the Colony. In April, 1657, the Rev. Gidion Schaats set sail from this Amsterdam for this Colony, and about the same period the D. W. I. Co. wrote a letter, stating that they would soon send a *Bell* and a *pulpit* "for the inhabitants of Fort Orange, and of the village of Beaverwyck [footnote: *Beaverwyck* (one of the names of the city of Albany under the Dutch) is synonymous with *Beaver-town* or *borough*. "Wyck" is equivalent to the English word *burgh* or *borough*, as Peterborough, Williamsburgh, &c. or as the Dutch have it, *Wiltwick*, *Beaverwyck*, &c.] for their newly constructed *little church*." This church stood on the site of the old Dutch church near the foot of State-street. In this "little" church divine service continued till the larger one was built and enclosed it; and this larger church was demolished some years since. It was a venerable pile of by-gone days, and the march of improvement has seldom overturned a nobler structure. Not a few of our Dutch inhabitants mourned over its destruction as for a lost child, and some of the painted or burnt [burnt] glass of its Gothic windows with other relics of its existence, are still preserved and cherished by many of our Dutch families with religious affection and veneration.³¹

The Government of Beaverwyck was in the hands of three or more "Commissareis [!]," appointed by the Governor and council, and they held their office usually for one year. Their powers and duties are not easily defined. They acted as a *Court of Justice* with very ample and discretionary powers, both civil and criminal, subject to an appeal to the Governor and council. They also exercised *legislative powers* over the village, similar in some degree to the powers now exercised in this State by *trustees of villages*, or by *corporations of cities*. It is difficult to determine the limits of their powers beyond what has been mentioned, unless we should add that whatever seemed "good in their eyes," they were allowed to do, or cause to be done, and when difficulties or opposition occurred in the execution of their edicts, they had only to call on the garrison of Fort Orange to enforce them. One thing is certain, these Commissaries were authorised, or did at least undertake to

give or refuse permission *to any one* they thought proper to *build* houses, carry on trade, *buy* or *sell*, to make or establish manufactures, stores, shops, taverns, “beer-houses,” &c. In short their power appears to have been despotic and unlimited. The fines, forfeitures, duties, and taxes which were imposed in Beaverwyck were very heavy. In the month of June, 1647, Jan La Battie, who probably, judging from his name, was a Frenchman, (for many of the Hugonots had sought an asylum here,) applied for permission “to *build* a Brewery” in this city, and it was granted him “on his paying yearly *six* Beavers.” Now this could not have been less than a duty of from 60 to 80 dollars and perhaps \$100 by the year! The revenues arising from the sale of beer in this city were enormous, considering the paucity of its inhabitants. The duties were usually *farmed out*, or sold at auction, and during this year and for several years afterwards the duties on beer in Beverwyck exceeded eight hundred dollars — a pretty strong evidence that the Dutch [!] were, as Mr. Vander Kempt called them, “*famous* beer-drinkers.” It cannot be clearly [!] ascertained whether this beverage was extracted from *barley* or *wheat*, but we incline to think it was the latter, as but little barley was then cultivated in the Colony. The laws against *Sabbath breaking* imposed very heavy fines on offenders, and many cases are on record in which the mulcted prayed in vain for mercy. Still, there was a kind of relaxation indulged which must somewhat move our risible muscles. Thus, one regulation declared “that no beer should be bought, drank or sold on Sunday, *after the bell had tolled for church*,” impliedly allowing it *before*. But of all the objects to which the Dutch extended their protecting and jealous care, that of the *fur trade* with the Indians claimed the greatest, and was almost the all absorbing subject of their edicts and proclamations. The Indians (as has been already stated) usually obtained blankets, gun powder, guns, ball, &c. in exchange for their furs, and consequently the D. W. Ind. Co. attempted to *monopolize* the entire trade in blankets, powder, &c. Any invasion of this right was severely punished. By an ordinance or law passed in the year 1639, it was declared “that if

any one without previous license should sell any gun powder, &c. to the Indians, he should suffer *death*, and the *informer* under this law was entitled to a reward of 50 guilders.” The laws of Draco have scarce a parallel to this, nor can it be justified on the ground that the Colony would otherwise have been in danger from Indians having *arms and munitions of war in their hands*, and that therefore great caution and severity was absolutely necessary for their safety. No, the Indians on the *west bank* of the Hudson were *friendly and pacific*, and the Dutch in Beverwyck traded with none other. The law, whatever might have been the pretext, was clearly dictated by the love of gain — the spirit of monopoly. Of the same character, and to prevent strangers from travelling in the interior without the knowledge of the magistrates, was a regulation of “placard” adopted in 1652, and with some modifications continued for several years after. This “*placard*” (which *word* according to Dr. Johnson is derived from the Dutch and French, and signifies “edit, declaration, manifesto,”) is so remarkable that we think a part of it should be given in its very terms. It is in these words, “all persons are hereby notified, that henceforth until further orders, *on every Monday two* yachts or barges *may* start from here {New York} to Fort Orange *with privilege* to take together, or one by one, *not more than six* passengers who shall receive due certificates for the purpose, and the skippers and passengers may pursue their journey *having such* passports, and which shall be given them by the honorable Arent Van Hattem and Willem Beekman at the office of Jan de Yonge, on *Saturday* morning at 8 o’clock *precisely*.” It bears date New Amsterdam, August 7, 1653, and signed “Arent Van Hattem, P.L. Vandergrist, Willem Beekman, Johannis Willem Van Bruggen.” — Genius of Clinton and of Fulton! what would ye say if you could have beheld this puny attempt of *Myndheers* not more than a [!] 180 years since, to stop the progress of navigation, the march of human intellect, the development of our moral and physical energies, and [!] the increase of our trade, commerce and manufactures! And could Gov. Stuyvesant and his cotemporaries [!] now arise and witness the great improvements

of the present age in all these and many other respects, would not their *tobacco* pipes drop from their lips? and would they not, like Rip Van Winkle, be astonished at the *wonderful changes* which they beheld! But raillery apart, our good burghers of Beaverwyck were not disposed tamely to submit to this infringement of their privileges. On receiving the first intelligence of this edict, they seized and dismantled the vessel which brought it, and attempted to *Lynch* (to use a *modern* phrase) the Commander of it, but who fortunately escaped the severe drubbing intended for him. The Commissaries of Beaverwyck were alarmed, the soldiers from the fort were called to their aid, and after a smart skirmish order was restored, the vessel re-captured and sent back to New York. Gov. Stuyvesant summoned his Council and declared that "if ever the Beaverwyckers should repeat this offence, he would put them out of his protection, and they should never have another *Domine* {minister} *Sloop* or *Soldier* from him." (To be deprived of the *last* would have been no great matter of regret to the Beaverwyckers.)

Fort Orange at this time was in a tolerable state of repair. The garrison consisted of 40 soldiers, and occasionally was increased to 60 or even 100, as Stuyvesant thought the exigencies of the times required.

According to the Records, "an elegant large house with a ballustrade," had been built by Dirck Cornelise of Wesel, within the precincts of the fort, and also, "eight small dwelling houses for the people of the fort." But one can hardly refrain from smiling, when he reads the complaint made in the year 1639, by the commander of the fort to Gov. Stuyvesant, stating, "that the fort was in a miserable state of decay, *and that the hogs had destroyed a part of it.*" The proceedings of our Dutch Courts at Beaverwyck, even in civil suits, evince more of the spirit of litigation than is compatible with the morals of an enlightened people, and those in *Criminal cases*, and for *violations of Ordinances*, furnish the same melancholy evidence. The *fines* imposed were generally distributed in the sentence, in this way, "one third to the church, one third to the public, *and one third to the Attorney General.*"

No doubt the office of Attorney General was very profitable and eagerly sought after. *Taxes* were imposed on *Cattle* called *Hoorn Gelt*, and on land, called *Morgan tal* [footnote: A Morgan of land contained two English acres and one seventh of an acre, so that seven morgans are equal to fifteen English acres.]; besides, there were other taxes on property, which produced a handsome revenue to the city. Heavy duties were also laid on *tobacco*, of which large quantities were raised for exportation on Manhattan Island, and of a quality, according to the letters from the D.W.I.C., "Equal, if not superior to the best Virginia." *Goats* were likewise taxed, animals that were in general abundance in the Colony. Yet under all these exactions and taxes, the Colony flourished and increased in population and resources, owing, no doubt, among other causes, to the extravagant profits derived from the fur trade.

The *Criminal Code*, though apparently severe in its terms, was seldom carried so far as to inflict the punishment of death, except for murder. But we too often find instances recorded of the accused being put to the torture in Beaverwyck and New Amsterdam, to extort confessions of guilt. This was then a practice common in every civilized country in Europe. In this Colony the accused was not put to the torture, unless [!] strong or violent presumptions of guilt were manifest; and the case of P. Willemson is recorded, who was charged with house-breaking, and on the 24th August, 1654, was *tortured*, and *confessed* his guilt, and was afterwards banished. In what manner particularly, the torture was applied, whether by *thumb screws*, similar to those found on board the Spanish Armada, or by the rack, &c. as was practised by the Dutch upon the English at Amboyna [footnote: Gov. Stuyvesant in his correspondence with the D.W.I. Co. alluding to the charges made by Cromwell's government against the Dutch says, that the English account of the Amboyna tragedy, "was a damnable lie, which even the devils in hell would have been ashamed to repeat."], in the reign of the first James, we know not.

We have several instances of banishment from the colony by the mere *sic volo* of the

Governor. Two of them we shall mention. In June, 1654, one Jan E. Bont was appointed a Commissary of Beaverwyck, by an order from Stuyvesant. Bont, for some reasons not now known, *declined* the office, and so informed Stuyvesant. The latter was in a rage: "what, not accept an office worth 150 guilders by the year for a salary [!], and double that in perquisites!" The thing was almost incredible to him; and certainly had Stuyvesant lived at the present day, he would *have found no other instance of the sort*. Stuyvesant issued his edict, that "Jan E. Bont must hold himself in readiness to leave the Colony by the next ship, called the King Solomon, that would sail for Vaderland, {Holland, or rather "Father Land,"} And, sure enough, poor Bont was packed off *sans ceremonie*, to Holland! But the next case was of a more noted character. *Braut Arentse Van Slichtenhorst*, (how euphonious!) who had for some years been an agent for the Patroon of "the Colony" of Rensselaerwyck, or as our translator calls him "the President of it," {probably more correctly, Steward,} who had had [!] most grievously offended Stuyvesant by his repeated claims of *absolute sovereignty* over this manor, by claiming a part of Beaverwyck as lying within its territorial limits — by refusing to pay certain "recognitions and taxes" to Stuyvesant — by claiming a fort at "Beeren Eyland," and "daring to fire at the Company's sloops sailing from New Amsterdam for Fort Orange, in order that they might lower their peaks as a mark of submission to his authority," and by several other indignities to the person and government of Stuyvesant. After a long, angry and procrastinated paper war of placards, manifestos, declarations and protests, Stuyvesant had at last the good fortune to capture Van Slichtenhorst and imprison him at New Amsterdam, and notwithstanding the most humble petitions from his prisoner for liberation, he sent him off in a government ship to Holland! [NB: the 2nd edition ends here.] While treating this last case, we may as well briefly allude to the origin and claims of "the Colony" {Manor} of Rensselaerwick [!] under the Dutch. In 1625, (as has been before stated,) the Dutch for the first time intended to *colonize*, and in

order to encourage emigrations, they promised large bounties of land to settlers in their newly discovered territories in America. The "conditions" of settlement stated that the emigrants might *locate* their lands in the Colony *wherever they might think proper*, provided such locations did not interfere with *prior* locations or with the rights of the Company to lands set apart for public purposes, as for villages, forts, warehouses, &c. By the terms of the condition the then patroon of Rensselaerwyck, in right of himself and his three associates in Holland had made a location north of Fort Orange, and was entitled to take *four* Dutch miles, (equal to *sixteen* English) but it would seem from the Dutch Records that the patroon had never caused an accurate, or indeed *any* survey to be made so as to ascertain the boundaries or limits of his location. It would seem also that the patroon claimed, as lying within his manor *a part of the village of Beaverwyck, nay, even Fort Orange itself*. This enraged Stuyvesant, who claimed (and he showed much *legal lore* on the occasion) that no one but the government would claim *within a {Dutch} mile from the fort*, (that being the distance which it was supposed a cannon ball might reach) and that Beaverwyck had been located before the "Colony" of Rensselaerwyck had existed, and he declared Van Slichtenhorst's claims were "wicked, unjust and *diabolical*," but that in order to settle this controversy he proposed, that the patroon should take his *four* miles "all on one side the North {or Hudson} River, or *two* miles on each side." Van Slichtenhorst, in a subdued tone, "prayed for delay till he should consult his lords and masters in Holland." And there the affair rested till at a subsequent period it was revived. Perhaps hereafter his subject may be renewed in these reminiscences.

Gov. Stuyvesant was usually called by the inhabitants "Houten-bien-Piet," or *Wooden-legged Peter*, in allusion to his having a wooden leg — he having lost a leg in battle before he became Governor of this Colony. He was certainly an extraordinary man. All the public documents and opinions of that day recorded in the Dutch Records shew that he was a well educated classical scholar. On one occasion a

request was made by some *Englishmen* from the New England Colonies for permission to be employed in repairing the fort at Beaverwyck, he promptly replied, "the request cannot be granted — it would be like bringing the Trojan horse within the walls, — *timeo Danaos et dona ferentes*." Amidst all his severities he occasionally evinced an eccentric disposition — a commissary having offended him, he directed "two Gospel ministers to go and reprimand him for his offence." It is true (as Washington Irving infers in his writings) that Stuyvesant possessed the bumps of *adhesiveness* and *combateness*," in a very great degree. Although eccentric, he was resolute and firm, seldom swayed from his opinions, and evincing much obstinacy when his rights, as governor, or the rights or interests of those he represented, were called in question; but he did not appear to be cruel or ferocious unless we except the instances before mentioned of *Bont* and *Van Slichtenhorst*. In his correspondence with the Dutch West India Company, he displayed uncommon powers of mind as a statesman, a financier, a diplomatist and a scholar. In short, he was well fitted in every respect for the station which he occupied. Whatever faults may now be detected in the *policy* of his administration, they may fairly be ascribed to the spirit of the age in which he lived, and the commercial character and enterprise of the Dutch.

Thus ends Eights's most serious foray into local history.

With this, we reach the end of an identifiable segment of the life of James Eights. How he spent the remainder of the decade, we shall consider. His brief, rather low-key participation in the New York State Natural History Survey may be looked upon as a natural outgrowth of the previous decade of preparation — including his culminating pedestrian tour to the Pennsylvania anthracite mines. For reasons that we can merely guess at, that role in the Survey failed to fit his fancies and he assiduously cultivated a chance to return to an exploring life — for which, of course, one brief part of the previous decade had made him an obvious candidate. In that totally unhappy affair, he was left standing, almost literally, at the pier.

NOTES

1. The book last mentioned must have been J.N. Reynolds's *Address, on the Subject of a Surveying and Exploring Expedition to the Pacific Ocean and South Seas. Delivered in the Hall of the Representatives on...April 3, 1836* ("With Correspondence and Documents," it came to 300 pages). Reynolds's tireless promotion of a National exploring expedition cannot have escaped James Eights's notice. All gifts are listed in AI "Catalogue of Properties." The Albany *Argus* from time to time, often tardily, carried notices of gifts to the Institute that mentioned Eights's gifts: see 18 Apr, 4 Nov 1835, 8 Oct 1836, 23 May 1837, 15 Feb 1838.
2. *The Zodiac*, 1(12): 178-180, June 1836. I have been unable to find out anything about J.B. Wilcox, whose ill-informed query sparked this long response. Castile is in Wyoming County, far western New York.
3. A vain hope, in all probability, considering his efforts to be scientific and Wilcox's determination to ape the methods of science without gathering facts along the way.
4. Eights, "A Synopsis of the Rocks of the State of New-York," *The Zodiac*, 1(2): 27-28, Aug 1835. J.W. Wells, *Early Investigations of the Devonian System in New York, 1656-1836*, pp. 59-60.
5. Eights always warmed up to his subject in sonorous sentences within a mile-long paragraph — and, even as he made his points, he hedged a little.
6. The enormity of the task outlined here must shortly have become evident. Perhaps he scared himself out of pursuing the matter any further than he did. His "M. de la Beche" was Sir Henry Thomas De La Beche (1796-1855); the work referred to was *A Geological Manual* (1831; a third edition. was available by 1833). One marvels at his temerity in openly championing a foreign authority, however sound his reasons may have been, with Amos Eaton's geological star so much in evidence in the firmament of that time.
7. I have left words spelled and unitalicized as in the original. Except perhaps for luxuriance, he had no reason to characterize the plant fossils as similar to today's tropical forest.
8. See Amos Eaton, *Geological Text-book*, 2nd ed.
9. J.W. Wells, *Early Investigations*, p. 60, takes it to be a valid part of Eights's geology of New York. The first number appeared in *The Zodiac*, 1(7): 111-112, Jan 1836.
10. One wonders what secret lurks here!
11. Wells, *Early Investigations*, p. 60.
12. If Eights left immediately after finishing his September segment of "The naturalist's every day book," the time would now be early to middle October.
13. Part 2, *Zodiac*, 1(8): 113-116, Feb 1836.
14. The ferns, not in fruit as that term is defined today, were the spleenwort, *Asplenium ruta-muraria* and one, apparently thought by him to be the same genus, but by error said only to be "aelenum," that I am unable to identify.
15. As to Colonel Edward Clark, he may have been a colonel in the state military establishment or the title may have been honorary. His bachelor status is dubious; perhaps he was unmarried at the time he lived at Ulster. I assume he was the "Edward Clark of Brooklyn, inventor, who erected the first white-lead works in America"

(*National Cyclopaedia of American History*, 7: 46), whose daughter Maria Amelia was mother of Gardiner A.A. Deane (b. 1840). According to the *Ulster Telegraph* (index prepared by Audrey M. Klinkenberg, 1994), "Col. Edward Clark, formerly of this town," died in Brooklyn 8 Jun 1848, aged 65 years. Some perspectives on Clark and the plant may be gained from an anonymous report written after a visit to "the Ulster White Lead Co. (the *Telegraph*, vol. 36, no. 10, p. 1, 1881). By then, all memories of Clark had disappeared but it was claimed that the mill was established in 1832 as "The Great Falls Manufacturing Company." The site had a checkered history of entrepreneurial enterprise. In N.B. Sylvester's *History of Ulster County*, p. 39, it is reported that in 1835 Charles Ripley bought the site, "enlarged the building, and commenced the manufacture of white lead according to a process Col. Edward Clark, his superintendent, claimed to have discovered." If this date is correct, Clark's association with the mill began the year of JE's visit. Eights was, in any case, right in predicting that Clark would be bilked of his rights (or alleged rights). Ripley died in 1837, the mill passed to a creditor who operated it successfully for several year, whereupon Clark attempted to claim a royalty of \$10 a ton on all the lead that had been made. In the ensuing trial, "it was proved that the process claimed to be discovered by Mr. Clark had been used and abandoned in France many years before." The lead plant is mentioned in J.H. French, *Gazetteer of the State of New York*, p. 666, note 8. I am indebted to generous help by Florence Prehn and Audrey M. Klinkenberg, Ulster County Genealogical Society.

16. *Houstonia* is now, unhappily, *Hedyotis*; the specific name is usually spelled *caerulea*; Eights's common name of Venus's pride is a new one to me — and a welcome turn from the usual chaste names of bluet, innocence, and quaker-ladies; many spring-blooming plants may flower in late autumn, if cold weather does not come and delay their blooms to the following spring.

17. *Anagallis arvensis* is an introduced weedy annual.

18. *The Zodiac*, p. 116; Wells, *Early Investigations*, p. 60.

19. This attitude must have shaken both his Federalist and Jacksonian neighbors. Some of its sentiment surely motivated his later graphic reconstructions of early Albany street scenes. *The Zodiac*, 1(9): 141-143, March 1836.

19A. The Delaware and Hudson Canal operated from 1828 to 1898; see D.H. Sanderson, *The Delaware & Hudson Canalway*, map, p. 11.

20. *The Zodiac*, 1(10): 146-147, Apr 1836.

21. His *Rhus venenata* is now *R.* (or *Toxicodendron*) *vernix*; alder is *Alnus serrulata*; black oak, his *Quercus tinctoria*, is now *Q. velutina*; his name hoop ash for hackberry (genus *Celtis*) is new to me; *Pinus pendula* is now *Larix laricina* or larch, although his hackmatack is a perfectly good common name for it. I know no reason to suppose he saw two kinds of sycamore; perhaps he saw trees of different bark color, due to age or a local influence. The turtles are painted, *Chrysemys picta*; spotted, *Clemmys guttata*; snapper, *Chelydra serpentina*.

22. It is unfortunate that no date nearer than mid-autumn 1835 can be put to this notable record. It appears

to have been a purely local, food-oriented movement by the birds. For a definitive account, see A.W. Schorger, *The Passenger Pigeon*; there is no reference to this event in his summary notes on New York, pp. 276-277, or Pennsylvania, pp. 277-279.

23. *The Zodiac*, 1(12): 177-178, Jun 1836. For an account of the railroad, see D.H. Sanderson, *The Delaware & Hudson Canalway*, pp. 20-ff, map, p. 19.

24. One would say "Order Ericales" today. His common names are sufficient for identification, but the typesetter scrambled words thus, we ought to have "spicy winter-green" and "mountain-laurel." Interestingly enough, even the generic names have been "spoonerized": we have "Kaltheria procumbens" and "Gaulmia latifolia," instead of *Gaultheria* and *Kalmia*!

25. Warwick, Stevens Carpenter, *The Summer Paradise in History*, pp. 50-51. See further: Sanderson, *The Delaware & Hudson Canalway*, pp. 20-23; illustration, p. 21.

26. *The Zodiac*, 2(1): 10-11, Jul 1836.

27. *The Zodiac*, 2(2): 28-29, Aug 1836. This complex matter can be envisioned by reference to Eights's diagram of the coal measures in the Lackawanna valley, p. 28.

28. *The Zodiac*, 2: 36, 57, 65, 81, 110, Sep 1836 to Jan 1837. *Albany Argus*, 18 Sep 1832. Note 12, chapter 11.

29. *Reminiscences / of the / City of Albany.* / by James Eights, M.D. / With an engraving, / shewing a view of the city, from the opposite / side of the Hudson River. / Albany: / 1836. 18 pages; type-bed size 2.75 x 5.5 in. What I term the commercial edition has been newly type-set: *Reminiscences / of the / City of Albany.* / With a beautiful and correct Engraving of the City, / taken from the opposite side, of the Hudson River. / by James Eights, M.D. / (Second edition.... Copyright secured.) / Albany: / 1836. / A.J. Bready, printer. 12 pages; type-bed size 3.25 x 6.25 in. Mildred Sharpe, 20 Sep 1988, reported on a letter in her possession from William Eights Burton (son of Harriet Gibson and great-grandson of Abraham Eights), dated 1903 (the only date she gave), in which Burton wrote: "James painted a picture of the old dock on the Hudson River at the foot of Broadway with sloops and schooners landing their freight. This picture is now, I believe, at the rooms of the Albany Historical Society." The Albany Historical Society later merged with Albany Institute. No such painting is in today's AIHA collection, according to W.G. Balla. I know of no evidence that the engraving of this work of 1836 was done from a painting. For a biography, with portrait, of W.E. Burton, see G.R. Howell and J. Tenney, *Bi-centennial History of the County of Albany*, pp. 946-947.

30. Eights returned in later life to a history of the Pinkster Festival. I shall add to it a full review of relevant references. The resemblance of "Maughet de bruyt" to the American "shivaree" (charivari) will be noted.

31. Similarly, when the Lydius House was demolished in the autumn of 1833, old Dutch tiles were salvaged and accessioned by Albany Institute; see "Catalogue of Properties."

THE NEW YORK NATURAL HISTORY SURVEY, 1836

The role of James Eights in the historic New York Natural History Survey that got under way in 1836 is poorly documented. As usual, he left little record of his activities. Worse than that, we do not know how he got the appointment, what, specifically, he was supposed to do, what he accomplished, nor, except in the most general way, why and when he left. It cannot be claimed that such information does not exist: only that to this time it has not been found. Perhaps someone will one day check official papers of the primary state offices and officers most intimately involved with the Survey for the true history that lies back of official statements and interim and final reports of investigators.¹

Acting upon a suggestion of a select committee of the State Assembly in 1835, Secretary of State John A. Dix quickly prepared a brilliantly conceived report to the State Legislature in January 1836. The Legislature agreed. With authorization for a four-year Survey on his desk, Governor William L. Marcy signed the bill into law 15 April. Year one was already ticking away.²

On the advice of Amos Eaton and Edward Hitchcock (1793–1864) (the latter a widely respected Massachusetts geologist), Marcy divided the state into four geological districts, each with its own chief geologist; each chief had at least one assistant field geologist, with money to hire extra staff. (See my Chapter end notes in regard to the geological staff.) Geology was only part of the grandiose plan of

the Survey. After consulting with advisors that included Dix, Stephen Van Rensselaer, T.R. Beck, Eaton, and Edwin Croswell, Governor Marcy appointed Lewis C. Beck mineralogist, John Torrey botanist, and James Ellsworth DeKay zoologist.³

Whatever the reasons, James Eights played a low-key role in the field of geological candidates. Maybe he recognized his limitations. After all, Conrad's national recognition ill prepared him for either field work, reliable record keeping or administration. Maybe the governor's advisors recognized Eights's limitations without making their feelings public. In any event, he served briefly as field assistant to Timothy A. Conrad in the Third (Central) District. Conrad's tenure as geologist was short (see Note 3). Eights was then shunted to Lardner Vanuxem's Fourth (Western) District for the remainder of that first season (1836). (Vanuxem served as chief geologist of the Third District 1837–1841.)

There appears to be no record at all of James Eights's work with Conrad. We only know (as noticed by Fisher) that he was so attached for an unspecified time. The little we know of Eights as a geologist in the Survey is from Vanuxem's work in the Fourth (Western) District. The first annual report on work in that area was endorsed by Eights.

An unpublished letter from Vanuxem, written early in their association, is more concrete. In addition, it is a blockbuster in that it includes material never more than hinted at anywhere

else. Lardner Vanuxem wrote from Elmira, 5 September 1836, to Governor William L. Marcy, whose letter of 29 August Vanuxem had just received.⁴

Vanuxem reported to Marcy that he had communicated to Eights the governor's confirmation of Vanuxem's selection of Eights at \$800 per year (Fisher makes the annual pay of assistants, at least initially, as \$700, that of chief geologists as \$1,500 — princely compensations for the day, he thinks). It is evident that Eights had approached Vanuxem with an application to work with him, perhaps indicative of friction with Conrad or an acknowledgment that Conrad would not last. Vanuxem avers that he had, in any case, accepted Eights's proffered services only because "I understood it was acceptable to you." He goes on: "I was aware of his infirmity & but little feared it knowing that it would have no countenance from me & so far, if he has taken spirits it has been at night after I have gone to bed." He expected his restraint to continue to be effective. "I have," he says further, "no reason to believe Mr E. wishes to serve more than one year as he has often told me for the pay can be no object for were he not to walk from time to time the pay at the rate of 800 D^s would hardly pay travelling expenses."

Things had not gone smoothly, for Vanuxem operated upon the understanding that he would pay assistants quarterly, in advance, yet Eights's draft, with Vanuxem's endorsement, "was returned dishonored." Anyway, Vanuxem thought, since Eights was "indifferent as to continuing in the Survey," it might be "well to withhold the appointment paying him for his year of service should he remain so long."⁵

Some attention is due the "First Annual Report on the Geological Survey of the Fourth District of the State of New-York, by Lardner Vanuxem," because it was signed by both Vanuxem as State Geologist and James Eights, Assistant. There is no internal evidence to say precisely whose views were represented. I suspect they were mostly Vanuxem's. According to Fisher, it was characteristic of him to write reports devoid of acknowledgments. However, there is an Eightsian quality about the initial paragraphs that is worth notice.⁶

"This district comprises the [fifteen] counties of Otsego, Chenango, Broome, Tioga, Chemung, Cortland, Tompkins, Seneca, Yates, Steuben, Allegany, Cattaraugus, Chautauque [!], Erie and Niagara.

"In conformity with the letters and instruction otherwise received...no attempt at a detailed survey was commenced the past season [i.e., during Eights's tenure with the Survey], confining myself merely to that kind of reconnoissance best calculated to obtain such general geological information, as would enable me knowingly and satisfactorily to enter upon the detailed survey the coming season; a knowledge highly important for a survey of the magnitude contemplated, the importance of which, from the means furnished; the judicious distribution of its several parts; the facilities afforded by the horizontal position of a large portion of the rocks; the great extent and number of the valleys which intersect them; the abundance of fossils and the well marked order of the succession of the fossils, form a combination of circumstances so favourable, as to be without parallel; and should its execution be commensurate with the spirit in which it was conceived, can not but place New-York in a position as enviable for scientific distinction, as she stands pre eminent for boldness of conception, and for the promptness with which she executed her truly noble public works."

He goes on to say that no annual report, "embracing objects of immediate utility" could be expected: for "a district comprising 15 counties, containing 11,594 square miles, could not from a travel of less than three months, that being the period from the date of my commission, to the close of the favourable season, be so examined as to give satisfactory practical detail." Yet, "no less than 2,200 miles of distance of that district was travelled over, more than half performed on foot," and "much important scientific information, both general and particular, was obtained."

The report is an interesting and creditable general topographic and geologic account of the area, laced with observations that are both firsthand and perceptive. There are comments on "Petroleum or Seneca Oil" and coal, the former

then rather more a curiosity than a commodity, the latter much sought after but found only in tantalizing amounts that seemed likely would never prove abundant. It is pertinent to note that Vanuxem must have given Eights an education in regard to the vegetable origin of coal: "To those who may doubt the vegetable origin of coal, it may be necessary further to state, that in all countries, so far examined, the regular associates of coal are blue shale, gray sandstone and conglomerate; one, or all, with vegetable remains." Whether he finally agreed or not, Eights signed the report.

The investigators (there is no reason to suppose that Eights differed much in his opinions from those of Vanuxem) ended their report, "with no apology," on a philosophical note. "It is well known that a small number of mankind yield to that instinctive propensity which leads to a knowledge of the works of creation, regardless of all practical or ultimate end; whilst the larger portion direct their energies to the attainment of objects of immediate utility. The obvious providence is, as the two propensities rarely exist in the same individual, that whatever discovery the former in the progress of his investigations may make, becomes by the applicative habit of the latter, subservient to the well-being of all." Basking in the warm glow of this laissez-faire principle, it was confidently predicted that power would build upon power, just as "what is known forms but a limited scale or measure by which to estimate what the future will reveal."

In all this, "negative knowledge" is important: "Do not hundreds seek for coal, where none can exist? and is it not so with tin, antimony, and many other mineral products. A survey is a cheap way of acquiring and imparting knowledge." If you know what rocks "have been created" in your area, you know (both from observation and from what has been found in similar rocks elsewhere) what can fruitfully be searched for. "A knowledge of geology destroys confidence in empires, a source of evil in the direct ratio of ignorance." The laws of geology teach humility and discard "all that savors of the mystical." The authors accounted it strange that there were more skept-

tics to be found regarding the earth "as the work of the Lord," than "to the truths of revelation." The layers composing the earth, they were sure, are the leaves of a book, "none of them without instruction; and in their whole we see a display of successive creations, and that too of countless ages, rivalling in wonder, and drawing as much upon our imagination, as do the fictions of the east upon their youthful readers. These successive creations doubtless were preparative to each other, and of the present, the final or Mosaic one — being in this that man for the first time appears; and in his creation, as we have good reason to believe, the successive creations find their ultimate limit."

Thus, the motivation of an age: The best is yet to come — yet, the end is already here.⁷

Several instances can be found where James Eights generously shared material with leaders of the Natural History Survey, no doubt a reflection of his inclination to be interested in everything.

With his friend Ebenezer Emmons Sr., he discussed the probable habits of trilobites. In his so-called *Sphaeroma*, he provided an example of a pill-bug-like crustacean from his southern cruise, whose habit of rolling itself into a protective ball mimicked the rolled-up state in which many fossil trilobites are found. Such behavior made it hard for modern investigators to be sure they had legs, since it was difficult to dissect them and reconstruct the closely covered ventral body parts.⁸

Eights must have contributed freely his abundant observations on New York plants to botanist John Torrey. Torrey did not lack generosity in regard to cooperators but did not generally cite collectors in full, nor is it possible to know whether authorities cited were being credited with specimens or mere reports. Torrey's fourth annual report on the botanical department consists of a full, modestly annotated *Catalogue* of plants of the state. There are several Albany area records that may have come from Eights, directly or by way of L.C. Beck. Both are thanked "for rare plants of Albany County and other parts of the State."⁹

John Torrey's model final report was *A Flora of New-York*, in two volumes, in 1843. With its

abundant information on medicinal uses of plants, it was both informative and useful. "Dr. J. Eights" (no doubt James) was among people "who favored me with many rare and interesting plants." Eights was not among authors cited; aside from synonymy, most species were discussed without citing people who collected or otherwise documented them.¹⁰

Eights turns up a few times in James DeKay's *Zoology of New-York*, notably in volumes on Mollusca and Crustacea. In the mollusk volume, he was cited among "conchological works referred to": "Eights, J. Various contributions to the Zodiac...1835-6." In regard to *Helix palliata*, DeKay was informed by Dr. Eights of Albany that "this species appears to affect more especially the Limestone region." Dr. Eights found *Pupa pentodon* "common about Albany and Troy." In regard to *Unio complanatus*, he was informed by Eights, "this, as well as other fluviatile bivalves, are more perfect and ponderous in the canals and ponds than in quick running streams." Oddly, Eights was not mentioned in regard *Unio compressus* (formerly *Symphynota compressa*), although he supplied the original specimens to Daniel Henry Barnes, whose shells fell to Isaac Lea to name.¹¹

DeKay's citation of Eights in the volume on Crustacea was uncalled for, since he merely referred to Eights's *Brougniartia trilobitoides* (by that time moved to the genus *Serolis*). He felt it allowed him to classify properly a puzzling crustacean he called *Fluvicola herricki*.¹²

By the time Eights's name began to appear in any way as part of the Natural History Survey, he was no longer associated with it, except for ties of friendship with some of its workers. His departure, considering statements in Vanuxem's letter, while the first season of field work was hardly more than begun, can be no surprise. It would be interesting to know how he maneuvered his departure, considering that he seems to have remained on amicable terms with several participants in that prestigious undertaking. How he went about gaining a foothold on what he hoped to be his next assignment is less of a mystery, since many details of his application, his references, and so

on, went off to Washington, where they became a lasting part of the national archives and have since been studied in detail.

Meanwhile, he seems to have sustained his connections with the Albany Institute, then no longer in the best of shape financially, although for some years yet meetings were held regularly. He was credited with contributing specimens January 1836 and January 1837; in April 1837, he presented a collection of trilobites from Becrafts Mountain, near Hudson, and in May, a scrapbook composed of clippings he collected from newspapers in Nov 1833. There were further gifts in August, October, and November 1837: various snail, mussel, and shrimp specimens; a piece of Bank Note money printed by Randon, Wright, Hatch & Co., New York; a bivalve, *Sanguinolaria*, now *Macoma*, from Long Island; to the library, Sewall's memoir of John Godman and J.N. Reynolds's *Voyage of the Unites States Frigate Potomac*.¹³

Despite inconsequential notices in the *Albany Argus* to an exploring expedition during the year 1836 and 1837, there was never a hint that a local naturalist might be campaigning for a berth on it. Then, in January 1837, the *Argus* carried the terse and noncommittal notice: "Doct. James Eights, of this city, has been appointed by the Secretary of the Navy, a member of the Scientific Corps to be attached to the South Sea Surveying and exploring expedition." Perhaps Eights gave the Institute a copy of "Message of the President on the Exploring Expedition," reported among June 1837 accessions.¹⁴

Obviously not a red-hot topic, the next notice of the exploring expedition in the *Argus* was 26 October 1837, when the composition of the scientific corps was announced — it included "J. Eights, esq., Albany, N.Y.." ¹⁵

The next chapter will tell in detail how these events came to pass.

NOTES

1. The literature on the Natural History Survey, even though concentrated on derived, official reports, is enormous. Little of it is related to Eights. As a start, see: Meisel, *Bibliography of American Natural History*, 2: 606-618; John Mason Clarke, *James Hall of Albany Geologist and*

Palaeontologist 1811-1898; Jeffrey K. Barnes, *Asa Fitch and the Emergence of American Entomology* (see especially "More scientific and agricultural developments in New York State," pp. 37-44, for a history of the inception of the Survey); Donald W. Fisher, "Emmons, Hall, Mather, and Vanuxem — the four 'horsemen' of the New York State Geological Survey (1836-1841)" (a mine of information; in many ways the best account of personalities, assignments, achievements); Robert H. Fakundiny and Ellis L. Yochelson, eds., "Special James Hall Issue," *Earth Sciences History*, 1987.

2. Fisher, "Emmons, Hall, Mather, and Vanuxem," p. 32; Barnes, *Asa Fitch*, pp. 37-38.

3. Barnes and Fisher, as in Note 2; Fisher says the chief geologists initially were: Edward Hitchcock, mentioned above, who, for unknown reasons, lasted only a month; William Williams Mather (1804-1859), an Army engineer, brought in to replace Hitchcock; Ebenezer Emmons, Sr., Rensselaer School Junior Professor; Timothy Abbott Conrad (1803-1877), authority on fossil shells; Paris-educated Lardner Vanuxem (1792-1848). Conrad proved to have little capacity for administration and was soon replaced, his place being taken by Emmons's assistant, young James Hall, who was incompatible with Emmons, even though he had been the latter's favorite student at the Rensselaer School. In the 1837 shuffle, Vanuxem moved from the Fourth to the Third. These shifts will be noticed below, since Eights was involved. See Fisher, pp. 34, 36, 37-38. For a detailed account of Hall's role, see not only references here cited but also J.M. Clarke, *James Hall*, and the fresh, detailed look by Michele L. Aldrich and Alan E. Leviton, "James Hall and the New York Survey," pp. 24-33, in Fakundiny and Yochelson, 1987.

4. L. Vanuxem to W.L. Marcy, 5 Sep 1836, Boston Public Library, Ch.E.G.14.

5. Fisher, "Emmons, Hall, Mather, and Vanuxem," p. 38, makes Vanuxem to be a man who valued his private life, "a quiet, wiry, active, mild-mannered man of small stature but with great endurance. He was deeply religious, abstaining from alcohol and tobacco. He was brought up a Presbyterian but became an ardent student of Mormonism, Millerism, Egyptian antiquities and phrenology during his retirement." For a contemporary evaluation, see James Hall, "Letter on Lardner Vanuxem," 1848.

6. L. Vanuxem and J. Eights, "First Annual Report...Fourth District."

7. There was a long review of this report (taken from the *American Journal of Science*, April), noting James Eights as assistant to Vanuxem, in the *Argus*, Anon., 19 Apr 1837.

8. Emmons, *Geology of New York; Part 2: comprising the survey of the Second Geological District*, 1842, pp. 390-391, description of species, pp. 433-434. It is no disgrace to claim a new species that turns out to have been named; but it does seem unlikely that Eights so lacked outlets for his work that he had to bury a new species in such an out-of-the-way place. Meisel's statement, *Bibliography of American Natural History*, 2: 616, that Eights described fossils in this volume, is incorrect.

9. Torrey, Fourth annual report of geological survey of the state...Jan. 24, 1840 (Assembly Doc. No. 50), "Report on the botanical Department," pp. 117-197. Several Albany county and sand plains records no doubt owe something to Eights; his help is briefly acknowledged, p. 115.

10. Torrey, *A Flora of New-York*, being the final report of Division 2, Botany, of the Natural History of New York. See Meisel, *Bibliography*, 2: 614, for a useful analysis of contents. It is not clear whether Torrey's original herbarium of "about 50 folio volumes...deposited in the Cabinet of Natural History at Albany" survived intact; he claimed (2: vii) to have made up six other sets of specimens for presentation to public institutions. "Dr. J. Eights" was among people thanked (2: ix).

11. J.E. DeKay, *Zoology of New-York, or the New-York Fauna*, Part V, Mollusca, Pp. [5], 34, 51, 188, 191.

12. DeKay, *Zoology*, Part VI, Crustacea, Pp. [3], 52-53; for illustration of *Fluvicola*, claimed to be similar to *Brougniartia*, see plate X, fig. 37.

13. Various documents at AI have been combed. Richard E. Petit kindly untangled the reference to *Sanguinolaria*. At meetings of the Institute in these years, the treasurer commonly reported the absence of money in the treasury.

14. *Argus*, Anon., Tuesday, 10 Jan 1837. See also *Argus*, 16 Jul 1836; 11 Jan, 30 May 1837. For the new pamphlet, see: "Message on the Exploring Expedition," President (soon to be ex-president) Andrew Jackson, 6 Feb 1837.

15. *Argus*, Anon., 26 Oct 1837: a piece quoted, without elaboration of any sort, from the *New York Daily Advertiser*.

THE GREAT SOUTH SEA BUBBLE

As the hope for a nationally sponsored voyage of discovery burgeoned in 1836, James Eights's contentment with the newly born Natural History Survey waned. Well before the date of Lardner Vanuxem's letter of 5 September (cited in the last chapter), Eights had written to his political acquaintance, Benjamin F. Butler, at West Point:

"Albany 2nd August 1836

"Sir,

The fact of having been in some degree known to you during your residence in this City emboldens me to request your aid in procuring an appointment to the Expedition about to be dispatched by Government to the Southern Ocean. The length of time which I have devoted to the study of the different branches of Natural History, and the circumstances of having obtained some acquaintance with that region of the globe, while in company of Mr. Reynolds in the Anawan [!], afford the highest evidence of my qualifications for the situation I desire. Although from the almost entire absence of any conveniences for collecting & preserving objects of Natural History, I was deprived of the power of doing as much as I could have desired, yet the collections then made by me & now in the Museum of the Albany Institute are such as I can with honest pride, point to, as proof [of] industry & skill — Should it comport with your means to mention my application to the Secretary of the Navy in a favorable manner you will confer a great favor upon

Sir, your most respectful and obdt Servt
James Eights"¹

Butler wrote promptly to Mahlon Dickerson, Secretary of the Navy, from West Point, 4 August 1836 (I ignore irrelevant matters here): "I take the liberty to send you a letter just received from Mr. Eights of Albany, in whose behalf Mr. Croswell of the Argus also spoke to me a few days since, & requested me to write you. His scientific attainments as a naturalist, are said to be very admirable, and should you favor his application, I presume proper testimonials can be furnished in respect to them. As I have no knowledge of this sort, I can only speak on the authority of others; and though I should be glad to have Mr. Eights employed, if duly qualified, I must, of course, refer as to his qualifications to the initiated of whom there are several at Albany to whom, I presume, he will apply in case there is any utility in his doing so. May I trouble you to give me so much information on that point, as to enable me to answer his letter?"²

What was the exploring expedition to which Eights and Butler referred? The present enquiry concerns Eights's connections as a candidate for a position in its scientific corps. The entire story of what came to be called the Wilkes Expedition (1838–1842) must be largely put aside.³

The ball was given an additional push by Gerrit Y. Lansing, an Albany politician. He wrote 8 Aug 1836 to John Boyle, Chief Clerk, Navy Department, Washington: "I have this

day directed to the address of the Secretary of the Navy a package containing information in reference to the South Sea exploring expedition — It is communicated by James Eights Esquire a young gentleman of this City who was once in that region — The package is marked A and is intended for Captain Ap C. Jones who I am informed is appointed to the command of the expedition — Permit me to ask on behalf of Mr Eights that you cause the [piece?] to be delivered to Captⁿ Jones if in your city and if not that it be sent to him from [?] the Department — Knowing that the matter is of public concern I have taken the freedom [?] thus to trouble you.” This was endorsed to the effect that it was received 13 August; “I shall have it delivered to him on his arrival in Washington to which City he is now on his return from an excursion to North.”⁴

James Eights then prepared to see B.F. Butler in person, taking with him a letter written 2 November 1836 on his behalf by T. Romeyn Beck, his longtime friend and supporter: “Mr James Eights of this city is desirous of a place as Naturalist aboard the projected South Sea Expedition. I have no doubt of his qualifications for that station, as he has devoted himself for many years to the study of Science, & indeed some time since made a voyage to South America & the Islands belonging to it. He will present this personally, as he informs me, & you will then be better able to judge respecting his wishes.”⁵

Thus, Eights moved to secure an interview with Attorney General Butler — and, through him, with Secretary of the Navy Dickerson. This was further indicated by Edwin Croswell’s letter to Butler dated Albany, 8 November 1836: “Our friend Dr Eights will hand you this. He visits Washington on the subject about which we had some conversation when I last had the pleasure to see you, & which he will explain to you more fully. Any service which you can render him, will be appreciated by him, & will be gratefully rec’d by his friends here. / With great regard, / and in ‘hot haste’ / E. Croswell.”⁶

Eights’s strategy was to get Butler’s help in securing an audience with Secretary Dickerson — to whom he carried a bundle of letters of

endorsement, with a note from Butler to Dickerson testifying to Eights’s mission.

Butler’s letter to Dickerson, dated Washington, 11 November 1836, appears to have included a list of books on botany, prepared by John Torrey and Asa Gray (but in Gray’s handwriting) that will be noticed later. The letter read: “The enclosed, together with other letters, will be handed to you by Dr. Eights whose application for employment in the Scientific Corps, I sent to you last summer.”⁷

First: Governor William L. Marcy: 8 November 1836: “Sir: I take pleasure in introducing to you the bearer hereof Mr. James Eights of this city. He is a Gentleman of much knowledge particularly in the natural sciences. For a part of this season he has been engaged by me in the Geological Survey of this State and has, I believe, deservedly a good reputation as a Geologist. He has been once into the South Seas in an exploring Expedition performed in 1829 & 30 — he is desirous of being employed in the U.S. Service in the expedition to those seas which is about to be fitted out by the Government — I [find?] him well qualified for the service [he] wishes to be engaged in — I should be gratified if you sho[uld] see fit to employ Mr Eights —.”⁸

Second: Gerrit Y. Lansing wrote to Dickerson as follows, under date of 8 November 1836: “Dr James Eights of this City is about repairing to Washington to make application for the appointment of naturalist or Geologist [!] to the Southern Exploring expedition — With much pleasure I recommend his application to your favorable notice.”⁹

Third: N.Y. Secretary of State John Adams Dix wrote to Dickerson from Albany on the same day: “Dr. James Eights of this City is desirous of procuring the appointment of Naturalist or Geologist on the exploring Expedition to the South Seas. Dr. Eights has devoted many years to studies, which are calculated to fit him for either place. He has been recently engaged in geological examination in this State, and besides being well qualified by scientific attainments for the appointment he seeks, he is one of the best and most accurate geological draughtsmen in this quarter. He was

employed in 1829 & 1830 in the capacity of naturalist on the private expedition to the South Seas fitted out from the City of New York." On the back of this letter there is a note: "We concur in the within recommendation of Gen. Dix in favor of Dr. Eights. / A. C. Flagg / Edwin Croswell."¹⁰

And finally, there was a letter to Dickerson, under date of 8 November 1836, from Albany: "Dr Eights of this City will explain [to] you the object of his visit to Washington[.] [I a]m not personally acquainted with him [bu]t the enclosed letter from Gen^l Dix our [Sec]retary of State is decisive as to his [ca]pacity & I hope you may be able [to] gratify him with the employment [he] desires. / Very truly yours / M Van Buren."¹¹

Support continued to come in. From New York, John Torrey, already busily promoting talent for the exploring expedition, wrote to Dickerson, 17 Nov 1836: "My friend Dr. James Eights of Albany having informed me of his intention of applying for a situation on the South Sea Exploring Expedition, & having requested of me a recommendatory [!] letter, I would state that I have long known Dr. E. as a zealous naturalist, & a first rate draughtsman. He has devoted much time to the study of several branches of natural history, particularly geology & zoology. He wishes a situation in the latter branch, but is willing to be useful in other departments, so far as he may have time to spare from his own subject. The particular division of zoological science which he desires to have assigned him is Entomology, but he has no wish to confine himself exclusively to this. Dr. E. has labored with great zeal & success, for many years, in examining the geological structure of the State of New York."¹²

Joseph Henry, Professor of Natural Philosophy, wrote to Dickerson from the College of New Jersey (now Princeton), 17 November 1836: "I am informed by my friend Dr James Eights of Albany that he is an applicant for the situation of a naturalist in the expedition now fitting out for the South Seas. In reference to this application permit me to state that I have long been acquainted with Dr Eights and that in my opinion he is eminently well

qualified to be a valuable member of the scientific corps of the expedition. He possesses much general scientific knowledge — has devoted many years to the study of natural history — is an accomplished Draughtsman and has had much experience in collecting specimens."¹³

As regards his scientific competence, Eights can hardly have asked for higher endorsements that he got from the geologists of the New York Natural History Survey. On 22 November 1836, the following letter to Dickerson was written from Albany: "The undersigned respectfully recommend Dr James Eights of Albany to be attached to the Zoological department in the proposed naval expedition. He is well known to us as a zealous naturalist independent of his zoological attainments, has devoted much time to geological investigations and is considered as an eminent Draughtsman for objects of Natural History. Dr Eights it is believed would do great credit to the Expedition." This was signed by the following (identified on a separate page): Lewis C. Beck, M.D., "Prof. University of New York & Mineralogist for the Survey of the State"; Ebenezer Emmons, M.D., "Prof. Williams College, & one of the Geologists for the Survey of the State"; George W. Boyd, M.D., "Curator of N.Y. Lyceum & one of the Geologists for the Survey of the State"; James E. DeKay, M.D., "Zoologist for the Survey of the State of New York"; Lardner Vanuxem, "late Prof. in the College of So. Car. & one of the Geologists for the Survey of the State"; Timothy A. Conrad, "one of the Geologists for the Survey of the State"; William W. Mather, "late Prof. in the Mil. Acad. at West Point & one of the Geologists for the Survey of the State"; James Hall, "one of the Geologists for the Survey of the State."¹⁴

The officers of the Albany Institute were equally loyal. Stephen Van Rensselaer and other officers signed a joint letter dated 24 November 1836: "The undersigned, officers of the Albany Institute, respectfully recommend M^r James Eights as well qualified, as naturalist & draftsman in the proposed South Sea Expedition." It was signed by: S. Van Rensselaer, President, Joel A. Wing, Corresponding Secretary, First Department; Rich^d Varick DeWitt, Vice

President, Second Department; P[eter] Bullions; S[imeon] DeWitt Bloodgood, Vice President, Third Department; Daniel D[ewey] Barnard, Corresponding Secretary, Third Department; James G. Tracy, Treasurer; Matthew Henry Webster, Corresponding Secretary, Second Department, Horace Bush Webster, Curator; Ph[ilip] Ten Eyck, Curator; William H. Fondry, Recording Secretary, Second Department; William Alvord, Recording Secretary, First Department; John V[anSchaick] L[ansing] Pruyn, Recording Secretary, Third Department.¹⁵

Sparring for positions began almost immediately. In a letter dated New York, 3 December 1836, John Torrey wrote to Dickerson to say (in part): "I have recently heard what has caused me some uneasiness, viz. that D^r Eights has applied for the situation of geologist instead of a place in the department of zoology. When I gave him a recommendatory letter it was with the express understanding that he was not to apply for the place of geologist & mineralogist, as I knew that it was the general wish of the most intelligent naturalists of the U. States, to have that department filled by Mr. Dana. Dr E. told me to solicit an appointment for him as *one of the zoologists* for which I think he would do very well. His *forte*, however, is *natural-history drawing*, — & in this he would be most useful to the Expedⁿ — provided he would be willing to work out of his own particular branch."¹⁶

On 28 December 1836, Secretary Dickerson finally got moving on the exploring expedition and sent out similar quite unspecific letters of appointment to several men who had by that time been selected for the scientific corps. That to James Eights read: "You are hereby appointed a member of the Scientific Corps to be attached to the South Sea Surveying and Exploring Expedition now being filled out as...an act of Congress of the 18th of May last — / Your compensation will be at the rate of two thousand five hundred dollars a year and one ration per day while on duty under the...department. Your allowances for travelling will be the same as those made to officers of the Navy."¹⁷

James Eights's reply to Dickerson's offer was prompt:

"Albany, January 10th 1837.

"Sir

I have the honor to acknowledge the receipt of your communication of the 28th ultimo, appointing me a member of the scientific corps to be attached to the South Sea surveying & Exploring expedition now being fitted out under an Act of Congress of the 18th of May last.

"Your orders addressed to me at this City will be promptly complied with.

I have the honor to be
with profound respect

Your o^{bt} Serv^t

James Eights.

Hon. Mahlon Dickerson / Secretary of the Navy."¹⁸

At this point, Eights cooled his heels. It may be appropriate to take a brief look at machinations that had, by now, been going on for several months among individuals concerned with fitting out the expedition and finding berths on it. The amount of intrigue is astounding, the total a function of time, the power of rumor, a degree of noncooperation in high places, some genuine interest, and a vast amount of confusion. All this, be it said, in an expedition that President Jackson hoped to have on the high seas in October 1836!

While Jackson's hopes were entirely unrealistic, it is still true his lean little government did not move with any great celerity on a matter that had suddenly become to him a matter of great importance.

My account of who did what to whom, illustrative of the tangle of motives that had erupted on the scene, is here sparingly documented, since it is peripheral to my main interest in James Eights. Instances cited are from Dickerson's report to Congress in 1838 (HED 147) and the National Archives roll of letters received by the Navy Department relative to the exploring expedition in 1836, 1837, and 1838. The role of James Eights will be documented thoroughly.

Trouble was evident as early as 10 June 1836, when Edmund Fanning wrote a rambling letter to Dickerson, saying that even if keels

were laid that day, it would be eight to twelve months before a properly equipped ship could sail. Fanning felt a superintendent would be necessary but did not wish to enter into a newspaper altercation with Jeremiah N. Reynolds over it. Just as clearly, he did not want to operate under Reynolds's thumb in any way — whose "knowledge and views" he (Fanning) thought he knew full well. He could not appeal to Captains Pendleton and Palmer, who were out of the country, but "I can refer to two of the scientific gentlemen, companions in the voyage, Messrs. John Frampton Watson, of Philadelphia, and James Eights, of Albany; those are profound scientific men."¹⁹

Dickerson, 1 August 1836, asked for advice from the Geological Society at New Haven. Edmund Fanning, never mind his letter of 19 June 1836, thought perhaps he could relieve Secretary Dickerson of much fretful worry by being authorized to put two exploring vessels into service himself — if funds were turned over to him, he could economically provide the vessels within 60 or 90 days. On 31 August 1836, Dickerson asked the U.S. Naval Lyceum, New York, for advice on persons suited for the scientific corps and on subjects that ought to be covered. A similar letter went to the Lyceum of Natural History of New York.

On 28 September 1836, Asa Gray, already involved in advising on botanical matters, applied for the position of botanist; he suggested James Dwight Dana for mineralogist. On 29 September 1836, John Torrey, a Gray spokesman, suggested John Bartram Carr, son of Col. Robert Carr of Bartram's Botanic Garden, and Joseph Barratt as Gray's assistants.

On 2 October 1836, the New York Lyceum listed subjects to be covered and recommended James D. Dana as geologist, Asa Gray as botanist, Charles Pickering as zoologist. Lyceum leaders were content that competent scientists would not be secured without "an ample and liberal remuneration." In early October, Reynolds and Dickerson were sparring as to whether Reynolds was "corresponding secretary" to the whole expedition or just to the commander of the expedition — and when salary was to begin. On 6 October, Dickerson

thanked the New York Lyceum for their information but was wary of the matter of salary. Even though the expedition could accommodate no more than 12 "gentlemen," they must be men of "respectable attainments" (surely a viewpoint he had acquired from Reynolds): no "secondary characters" will be sent — they must be "mutual assistants to each other." "I have thought that \$2,000 per year, with rations, would be sufficient; this would not command the services of those who have lucrative business at home, and it is not probable that such would wish to engage in the expedition." The name of William Rich, as a botanist, had come to Dickerson, evidently with some political clout; opinion from botanists was that he was unknown but that there was work enough for two botanists, provided they were not assigned to precisely the same thing. On 8 October, Gray suggested that the field of Comparative Anatomy (under Zoology!) required a scientist; Torrey felt (7 November) that a *botanical* draftsman was not to be had in America and suggested importation from Europe (he obviously had no feeling that Eights would qualify for that job). On 7 Nov, Gray, in a long letter, did not entirely approve of either Raphael Hoyle or I.H. Shegogue but thought Alfred T. Agate might become a good draftsman. On 24 November 1836, Torrey wrote a savagely anti-Reynolds letter to Dickerson, warning "that if Mr. R. is to *have any control whatever* of the scientific gentlemen, they will (at least the majority of them) abandon the Expedition....He is utterly unacquainted with Natural History & no man of science who is possessed of the least self respect will accept of a situation under him." This was a rather strange thing for Torrey to have said, considering that most of the scientific staff, except for the political appointments, owed much to Reynolds for scouting them out and making their talents known to authorities. Many of them, in fact, including Gray, remained loyal to him. On 3 December, Torrey begged to be understood "that I have no unpleasant feeling towards Mr. Reynolds — nor was I urged to write to you by any gentleman who expects to accompany the Expedition. I knew, however, the sentiments of many of them, & merely gave

you the information to make what use of you thought proper. I have seen Mr. R. but once, & then only for a few moments, since he sail'd from N. York many years ago, in the *Annawan*." With this private letter of 23 November, Torrey enclosed a list of books, compiled by himself and Gray but in Gray's handwriting, that were "required in the Botanical Department of the South Sea Expedition" — 50-odd titles, a few of which were already in Gray's library. No time was being lost, even though nobody had, as yet, been appointed.²⁰

Even before passage of the authorizing act of Congress, Reynolds loomed large in the public eye and had become a thorn in the flesh of Dickerson. Jackson so favored him that he was to be given a major appointment with the expedition, something to the effect that he was to be "corresponding secretary and commercial agent," an appointment immediately opposed by Dickerson, who wanted no civilian invading navy turf. Dickerson offered to make him secretary to the commanding officer, a task that Reynolds denounced as a "clerkship," and appealed his case to higher authority. It was to be a galling experience throughout for Dickerson, with both men ultimately taking their ostensibly anonymous cases to the public press.²¹

Thanks more to Reynolds than his enemies liked to admit, candidates of real scientific merit had been recruited, marred by no political clunkers. Having once put on record that he wanted men of talent (even if reluctant to pay them commensurately), Dickerson had to follow suit. The final list included talent: Asa Gray (botany); Charles Pickering (zoology); James Dwight Dana (geology-mineralogy); Titian Ramsay Peale (ambiguously, as zoologist); James Eights (at least ultimately, paleontology, called then organic remains); Joseph Pitty Couthouy (conchology); John Witt Randall (entomology); Walter R. Johnson (physical sciences); Horatio Hale (philology, perhaps what we should call anthropology today) — and the two political appointments, William Rich (botany) and Reynell Coates (some aspect of zoology).²²

In spite of Jackson's hope to see the explor-

ing fleet asea before the end of his administration, that was not to be. Part of the fault was surely administrative and functional incompetence among both civilians of government and naval officials; part of it was deliberate foot-dragging (or substantial dunderheadedness) on the part of Dickerson.

The scientific corps, for its part, refused to participate in planning without compensation, which Dickerson was reluctant to offer. Several of them (Eights among them, if we are to believe him), gave up jobs and awaited orders — and salary checks. It was 30 June 1837 before Dickerson sent James Eights a letter, notifying him that his duties would begin on 4 July. To this Eights replied 5 July 1837: "I have the honor to acknowledge the receipt of your communication of the 30th ult. informing me that my duties would commence on the 4th current & directing me to hold myself in readiness for orders, and also to inform you of my place of residence. The latter will remain unchanged at this city to which place orders to me may be addressed.

"Having, on receiving my appointment from you to the Scientific Corps of the Southern Exploring expedition felt bound to relinquish the employments in which I was [then] engaged, & to decline any others subsequently, I am now in want of sufficient funds to equip & prepare myself for service. You will therefore pardon me for requesting to be informed whether it is customary to allow of any portion of pay being drawn in advance, and if so to whom I must apply therefor. In case this should not be contrary to the regulations of the service I should like to receive pay for two or three month's which would satisfy all my wishes. / May I also beg to be informed whether there is required any peculiar dress or uniform, as I should like to make preparations to meet such an exigency."²³

Presumably in response to Eights's letter, Mahlon Dickerson wrote to him 11 July 1837: "Shortly before the sailing of the South Sea exploring expedition, it is intended that gentlemen comprising the scientific corps shall receive an advance of their pay for two, three, or probably for four months. You will not be

required to go on ship-board before the 4th of September; so that you will, by that time, be entitled to two months' pay." Dickerson's reply of the same date to John W. Randall's query of recent date was less patient — or perhaps, in fact, he had not yet received Eights's letter of 6 July: "I have to state that, in your letter of appointment, care was taken that no mistake should happen as to the time on which your pay and emoluments should commence. If the condition contained in that letter was unacceptable to you, it was entirely at your option to decline the offer, or to ask for its postponement until the pay and emoluments were to commence." Dickerson was no more merciful to Joseph P. Couthouy, who was so badly in debt by this time that he was in danger of arrest by creditors and only escaped by pledging his shell collection.²⁴

Obviously both eager to show his weight and not particularly thoughtful of what another geologist might require (for he covered all fields), Dana wrote to Dickerson from New Haven 13 July 1837, in partial reply to a letter from Dickerson of 7 July, a list of some 15 book titles to be secured for his use.²⁵

On 2 August 1837, Dickerson wrote to Eights: "As there will be a meeting of the members of the Scientific Corps of the S.S. Exploring Expedition who are to belong to the Departments of Zoology, at Philadelphia for the purposes of consultation, I have to request that you will repair to that place as your leisure will permit. You will receive for your travelling expenses 10 cents per mile. You are hereby authorized to draw on the Navy Agent, Mr. Paulding at New York \$214.53/100 having one month's compensation due you this 4th inst — as member of the Scientific Corps of the S. Seas Exploring expedition."²⁶

What the previous order did not intimate is that the scientific corps in Philadelphia was represented by a substantial group of scientists, not zoologists only. On 3 August 1837, under a Philadelphia dateline, the following men signed a request that Dickerson consider "the application of Richard Philips as a general assistant to the Corps," considering him capable of looking after chemicals, scientific apparatus, packing

and preparing specimens": Johnson, Coates, Pickering, Couthouy, Randall, Dana, Peale, Gray, Drayton, Darley and Eights.²⁷

On 11 August 1837, Dickerson informed Commodore Thomas ap Catesby Jones, chosen to lead the expedition, that although the scientific corps was still incomplete, he wished Jones to go to Philadelphia to meet such as were by then appointed and able to be there. The roster consisted at that time of Pickering, Peale, Coates, Johnson, Dana, Gray, Couthouy, Eights, Randall, Rich, Hale, Darley, Drayton, A.T. Agate, R. Hoyle. Some were principals, some assistants, some artists, one philologist: "All these points are to be settled before they will be instructed to report for service." Various additional "duties connected with geography, hydrography, &c., will be performed by officers of the navy, according to arrangements to be made." This was, as Jones replied acidly in a letter dated the same day, something he had for a year tried to arrange but had had, to that date, no information on makeup and status of appointments to the corps.²⁸

The zoologists met and gradually came to a fair consensus. J.P. Couthouy acted as secretary of the group, clearly a sound head, even if he consistently spelled "zoological" as "goological" (discreetly corrected in the printed version of proceedings). On 17 August 1837, he reported to the "Committee of Conference" on the assignment of duties among zoologists. Except for the position of mammalogist, each field was assigned to a particular individual. There was unanimous agreement that Reynell Coates should have comparative anatomy and helminthology; Couthouy (malacology, conchology, and actinology — that is, coelenterates); Eights (organic remains); Randall (entomology and crustacea); Peale (ornithology); Pickering (herpetology and ichthyology). Both Peale and Pickering wanted mammalogy. Other members decided to give it to them jointly. Minor distributions could be satisfactorily made at a later time, as needed. Another adjustment had been made, namely in regard to Eights, who had particularly desired paleontology (so called here), while he had given over the crustacea to Randall who had wished it.²⁹

Some insight into the hassle that took place can be gathered from a letter of Dana to Edward Claudius Herrick (1811–1862), dated merely August. (Couthouy's letter does not mention Dana — perhaps he had not arrived in Philadelphia at the time of that conference.) There had been some difficulties, Dana wrote, but "the disputes on this subject are now about brought to a close...entomology, arachnology and crustaceology go to Mr. Randall, of Boston, who is a young man, not more than twenty-two or twenty-three years of age, scarcely bearded [Dana was born in 1813!], but I believe a good entomologist." Dana had been requested to attend to Entomostraca (one group of crustaceans, oddly, considering Randall's assignment) and Hydrachnella (which I assume to mean corals and similar coelenterates); Couthouy had conchology and actinology (coelenterates aside from corals?) — and, "as it seemed to meet his wishes, and to be desired by the corps," Dana "resigned" organic remains to Dr. Eights of Albany.³⁰

On 23 August 1837, members of the corps in Philadelphia recommended to Dickerson the candidacy of Henry J. Drayton for "assistant in the Hydrographical department, if such a department be constituted." They pointed out that "the Commander of the Expedition [Jones] has stated that there will be no difficulty in placing such an assistant." The letter was signed by Couthouy, Pickering, Coates, Randall, Eights, Peale, and Johnson.³¹

With no sailing date in sight (nobody quite admitted that), the scientific corps burgeoned. So did purchases of materials and equipment, both for the expedition as a whole and for the scientific corps. Dickerson's parsimonious soul must have cringed. Those in which Eights was closely involved I shall list in detail and in as nearly chronological order as possible (some lists were prepared under one date, but made known under letters of a later date). One such expenditure was a list of books procured [and to be procured!] for the U.S. Exploring Expedition, along with lists of supplies presented separately by members gathered in Philadelphia.³²

To this list of some 570 book titles (many of

them made up of multiple volumes; some required in multiple copies) I allude only to the loom of Eights in the planned purchases: His requests total 33 only, the overwhelming bulk on fossils, a few on geology, fewer yet on biogeography, one on British animals, one on the development of the human brain.

To the list of books he added a list of such supplies as Newman's colors, dissecting instruments, stone hammers, stone chisels, pocket compasses, parallel rulers, chemical tests, and a camera lucida.³³

A list of materials for general use of the corps was added. At about the same time, "the committee on the organization of certain departments of the corps" recapitulated the distribution of duties among zoologists (no mention of Dana!) on 26 August 1837. Differences from what has already been seen include: entomology and crustacea, J.W. Randall; ornithology and mammalogy, T.R. Peale; "erpetology" and ichthyology, C. Pickering. Eights remained in command of organic remains.³⁴

From Albany, 4 September 1837, Eights wrote to Dickerson: "The arrangements of individual duties made by the Corps so far as regards myself are in the highest degree equitable, and will I hope receive your sanctions. I am to take charge of the Department of Palaeontology one of the most Extensive and as yet almost the least cultivated of the branches of Natural Science. The department of the Crustacea was assigned to Mr. Randall, my attention to this latter has been paid with the view to a knowledge of the fossils belonging to it, but it will afford me great pleasure to give Every assistance in my power to Mr. R. should he desire it, when attention to my own branch will allow.

"The list of books & instruments which I think necessary to Enable me to discharge my duties properly was submitted to & I understand approved by the Commission appointed for that purpose. If it is in accordance with the usual practice of the department I should be pleased to be authorised to purchase these, and therefore request an order to this effect. Some of the Books on my list which are not for sale in the United States are to be [found] in the

Library of the State of New York & of the Albany [Institute] and can be procured from those sources if you will direct importation of others to supply their places. The [demand] for similar books & instruments has hitherto prevented their [being] kept in any Extent by the merchants and it will be [necessary] to visit Boston, New York & Philadelphia for that purpose[use].”³⁵

An item of interest, especially with regard to possible feelings that nobody in the navy touched liquor: Isaac Chauncey of the Navy Commissioner’s Office on 30 September 1837 wrote to John Thomas, Baltimore: “You will please purchase the high-proof whiskey from Mr. Wilson [of Baltimore], required for the exploring expedition; that is, you will take ‘all that is of any given proof equal to fourth, or over it, if, by admixture of the several proofs, he will reduce it to one standard, or to different standards of above fourth proof; provided there are not less than fifty barrels of each kind, and all to be gauged and marked so as to show the contents, the proof, and the quantity of water it will take to reduce it to first proof.’ A certificate of inspection to be given by the custom-house inspector, (if to be got,) setting forth these facts, which certificate must accompany the shipment to Norfolk, and a copy to be sent to this office. The whiskey must be shipped to Norfolk so as to arrive there on or before the 6th proximo.”³⁶

Dickerson was in a penny-pinching mood, made worse by a desire by Congress to know how much more money was needed. He would, therefore, not add to corps personnel until he knew how much money was available (4 October). Furthermore, he would not pay a bill for \$58 for a double-barreled gun for Couthouy; it was permissible for members to buy items on the approved list but the gun was not on the list (which was in Couthouy’s hand). He had given money to Dr. Pickering, to whom members should send their bills. “The articles which you were requested to purchase by Dr. Eights, as well as by Drs. Pickering and Coates, will be paid for.”³⁷

It seems unnecessary to document closely expenditures recorded by the Navy Department, even when concerned with Eights.

An order of 18 October 1837 from Pickering noted (“with surprise”!) immediate costs totalling at least \$7,700 — these included bills in hand at that time, and “probable estimates,” the latter including \$300 for books (chiefly for Mr. Eights).³⁸

That was not the end, of course: On 21 October 1837, James Eights wrote from Albany: “Through inadvertence on the part of the committee of the scientific corps...my requisition for stationary, &c., was not forwarded to you for approval; and I now take leave to hand it to you annexed, with the request that directions may be give to me for procuring it.

“In attempting to procure the books of which I had the honor to submit a list that has received your approval, I find that many of them cannot be procured; and I respectfully suggest whether I may be allowed to supply the place of such as cannot be obtained by others not included in that list.” This was accompanied by a list of 19 items, ranging from pencils, ink, paper, cards, drawing pens — plus “a light pick and small spade for digging fossils.”³⁹

Commodore Jones on 6 November 1837 announced to Dickerson from New York that the gentlemen of the *scientific corps* (his italics) had “reported themselves in person to me....The appointments held by these gentlemen do not assign to them any particular station or duty...; I am, therefore, greatly at a loss to know how to dispose of them individually, but more especially how and where to find room for the apparatus, stores, and materials they require, and have already collected at the navy yard, without encroaching too much upon the space appropriated for the stowage of provisions, or taking from the accommodation of the men....P.S. — It does appear to me still, that your original plan of having only six or seven persons in the scientific department, including geographical and hydrographical draughtsmen, would be decidedly preferable to the present enlarged and somewhat complicated subdivision of duties among so many persons.” To this letter, he added the list of men who comprised the corps that had reported to him: Randall, Rich, Hoyle, Pickering, Agate, Hale, Drayton, Peale, Couthouy, Gray, Eights, and Johnson.

(Note well the absence of the name of Reynolds!) Meanwhile, hardly lessening Jones's task of finding room for them, Dickerson (7 November) appointed Passed Midshipman J.A. Underwood as assistant draftsman to the geographical and hydrographical department of the corps. Jones the same day, ordered Lieutenant M.F. Maury to proceed to Washington, to secure instruments in the hands of the Secretary of the Navy, then to proceed to New York by the first vessel available from either Washington or Norfolk. To Dickerson, the same day, he urged the appointment of Dr. William Morton as badly needed librarian. That is to say, there was no more room for scientists — but another chief was required.

And more alarums. If Reynolds is to be believed, rumors that he would not accompany the expedition, even in a reduced capacity, were received with dismay by the scientific corps. Members drafted a letter to him 12 November 1837, saying in part: "That you would of necessity occupy a prominent station in the expedition has so long been considered by us, in common with the whole country, as a point beyond all question, the present contingency takes us wholly by surprise; and we have heard, with not less astonishment than grief, that in the official list of the civilians connected with this undertaking, the name of J.N. Reynolds is nowhere to be found. Upon the manifest injustice of this omission no comments are requisite." To any extent that the decision (to refuse a subordinate position) was his, they urged him to reconsider. It was signed "Your sincere friends" — Agate, Couthouy, Coates, Dana, Gray, Randall, Eights, Hale, Hoyle, Johnson, Pickering, and Drayton.⁴⁰

More encouraging noises, indicative of an early sailing: 9 November 1837, Dickerson sent to Jones the guiding "Instructions" for the Surveying and Exploring Expedition to the Pacific Ocean and the South Seas, the fleet to consist of the frigate *Macedonian*, the ship *Relief*, two brigs *Pioneer* and *Consort*, and the schooner *Active*, all now at New York. "The primary object of this expedition is the promotion of the great interests of commerce and navigation. The advancement of science is considered an object

of great, but comparatively of secondary importance." This document spelled out the steps to be taken to carry out the aims of the scientific corps, which were laid out in detail. Pertinent to Eights were the following directives: Eights, along with Hoyle and Underwood, were to assist Maury and James Glynn in the geographical and hydrographical surveys; Gray was botanist, with Rich as assistant, Agate as "drawer and painter of botanical subjects"; Doctor James Eights was in charge of organic remains; Chaplain Walter Colton (contra Jones's wishes) was to act as librarian, while he would also write a history of the voyage. Further guides and directives were appended, all to be shared with the scientific corps.⁴¹

Various bills for goods bought for Eights are not itemized further. It is pertinent to note that with no definite departure date in sight, J.K. Paulding, navy agent in New York, reported on 13 November 1837 his dismay that appropriations for the exploring expedition were exhausted.

Annoyed by what he considered ill-conceived tinkering and tampering by Dickerson, and worn out by all the delay and uncertainty, Commodore Jones resigned in disgust in November 1837. Immediate sailing was out of the question and so it remained for many months.

There was further dawdling and posturing, most of which must have affected Eights, but his role in it is unknown. He was apparently simply ignored. About this time, Reynolds published as a substantial book the newspaper salvos that he ("Citizen") and Dickerson ("Friend to the Navy") had fired at each other over the previous months. Jacksonian papers defended Dickerson, some of them even taking their sometime hero Reynolds to task. With patience playing out on all sides, nerves frayed and tempers short, Dickerson had a private letter 15 January 1838 from crotchety Philadelphia naturalist George Ord, who wanted to reduce the scientific corps to Peale and a taxidermist (Drayton), a botanist, and a machinist. Astronomy and hydrography were to be done by qualified officers; meteorology should be taken care of by someone in the medical corps.

“Dispense with the remainder of the corps, whose proceedings, ever since their first organization, have evinced any thing but a desire to advance science, or promote the legitimate objects of the Expedition.” He especially wanted to eliminate “that incendiary fellow” — unquestionably Reynolds. Ord (1781–1866), an old-fashioned naturalist whose success in making money had assured him his niche in Philadelphia’s high society, must have echoed many of Dickerson’s sentiments.⁴²

Dickerson’s days confronting his nemesis, Reynolds, and promoting a project that he did not much care for in the beginning, were numbered. One naval officer after another declined to lead the expedition. President Van Buren suggested a *rest* for Secretary Dickerson and asked Secretary of War Joel Roberts Poinsett to “aid the Secretary,” a charge that could be (and was) interpreted by either party to his own delight. Poinsett, in a word, took over. Erosion in willingness of navy personnel to undertake command of the expedition continued. In a moment of inspired genius — as might be said — Poinsett suggested (in secret) that Dickerson appoint Lieutenant Charles Wilkes (who at one point had refused command of one of the vessels) to the command of the entire expedition. It was a daring move: Of 40 lieutenants on the active list, 38 had more sea service than Wilkes.⁴³

Nor was Charles Wilkes unwilling to add to his turf, an inclination enhanced by the degree of autonomy granted him by Poinsett, who worked closely with him. One result of the synergy was that the tonnage of the final expedition exceeded that of the one that did not sail — while its complement of scientists suffered a diminution: “‘a singular kind of reduction,’” as Dana put it. Given his own bent, Wilkes would have dismissed the whole civilian corps — but could find no possible replacements for them among navy personnel. Besides, Poinsett cautioned him, *some* of the corps must sail, for it was expected. Wilkes conquered by dividing, using the leverage of Titian Ramsay Peale’s advice and influence as a wedge to achieve his own objectives.⁴⁴

Sailing or nonsailing, red tape must be dealt with. Eights wrote from Albany 10 February

1838 to Commodore Charles Ridgley of the New York Navy Yard: “In compliance with a request made to me by Mr. Johnson that I should forward to you at the Navy Yard Brooklinn, without delay a list of all the articles procured by me for the South Sea Surveying and Exploring Expedition, I have the honor to transmit herewith a full and complete list of such purchases made by me, shewing the Number and Kind of Instrument, Book etc.” There follows his list of books and other articles “purchased by James Eights for the use of the Palaeontological Department of the South Sea Exploring Expedition.” It is divided into two parts. The first is a detailed list of nine books (on fossils, geology, plus English and German dictionaries), various bits of stationery and writing materials, dissecting instruments, and a box of water colors — all “secured in a box at the Naval Store Brooklyn Yard.” He had in his own possession Deshayes, *Coquilles Fossiles*, in three volumes, a dozen “Pen Knives,” several instruments, including a compound pocket microscope.⁴⁵

Meanwhile, Wilkes was on his way. He wrote to Poinsett on 1 May 1838: “I yesterday had a long conversation and a very satisfactory one with M^r. T. Peale relative to the organization of the Scientific [Corps] of the Expedⁿ / he coincides in the majority of a reduction and goes to the full length of my views in relation to them, & informs me that[?] the gentlemen who are at the heads of the Depts. are all extremely averse to its being as large or larger than I have expressed in my memorandums to you. Mr. Peale is fully of opinion that Himself and Mr. Pickering will be with Naval assistants, quite competent to all the duties in Natural history and that he can dispense with many of the articles provided in his Department and a great many certainly can be dispensed with in the other departments — he spoke candidly and sensibly and said he was extremely glad to find the few scientific persons who were to be employed were going to be amalgamated with the officers.

“Those he spoke of as being best qualified were[:]

Mr. Pickering as a Zoologist
 Mr. Dana — as mineralogist
 Mr. Gray as Botanist
 Couthouy Conchologist
 which including himself will make five. [A]nd
 Mr. Drayton and another as draughtsman.
 These are the best among the former corps & all
 efficient men —
 Mr. Randall the Intomologist is not agreeable
 [capable?]
 Dr. Coates for Comparative Anatomy & etc. is
 out of his Senses
 Dr. Eights for Organic remains is not wanted —
 from what I can learn his habits are not of the
 best —
 Mr. Johnson, Mr. Hale Philologist, The
 Taxidermist & Machinist can be dispensed with,
 and three of the painters.

"[T]hus we can be at once settled as respects
 the Scientific Dept. Mr Gray I have just seen
 and he coincides with these views also. [B]oth
 these gentlemen also inform me that the differ-
 ent scientific men contemplated that there
 would be employed more [Did he mean *no*
 more?] than five or six persons to assist in their
 departments[.]

"I hope in a few days to give you the views
 of Mr. Dana and Couthouy to whom I have
 written to meet me here if possible in a day or
 two[.] I see no difficulty now to occur to us
 from this ridiculously overgrown corps, if the
 Department will only suffer their pay to contin-
 ue until the Sailing of the Expedition, which
 will keep them quite quiet, as that has undoubt-
 edly been the motive which has induced many
 of them to get employment in the Expedition."
 There follows commentary on the state of
 instruments, etc.⁴⁶

As for Reynolds, he was down but not out.
 However little good it did, he did not remain
 quiet in regard to rumors that paleontology (he
 did not mention Eights by name) had been
 eliminated from the departments making up
 the corps. His scorn, in one of his notorious
 public letters (addressed to Poinsett, the mov-
 ing force, now that Dickerson was abandoning
 the field) signed "Citizen," was unbounded. It
 was a ringing defense of the value of the sci-

ence of organic remains. He defined his terms,
 as if to the village idiot; he called upon all man-
 ner of authority; he recited a litany of names
 and works — to complete which "would be to
 give the names of nearly all the great men who
 have written, during the last half century, on
 Natural History."⁴⁷

The plot thickened. Wilkes (memorandum
 unsigned but in his hand) on 10 July 1838 listed
 personnel of the scientific corps: Pickering,
 Peale, Couthouy, Dana, Gray, Drayton, and
 Agate.⁴⁸

The same day, Asa Gray, having consulted
 his tea-leaves, resigned. Even though Poinsett
 tried to change his mind and even though
 Gray's name was on Wilkes's list of 24[26?] July
 to J.K. Paulding of scientists to be alerted for
 sailing, Gray stuck to his guns.⁴⁹

In a memorandum by Wilkes, placed with
 August material but probably of earlier origin
 (see especially the Wilkes-Poinsett exchange of
 1 May), it is clear that he was quite prepared to
 take no outside personnel whatever. This is but
 one item of a long list of proposals: "Scientific
 Department — All the duties apportioned to
 Astronomy, Surveying, Hydrography,
 Geography, Geodesy, Magnetism, Meteorology,
 and Physics generally to be exclusively con-
 fined to the Navy officers, these [are] deemed
 the great objects of the Expedition....The other
 Scientific Depts. consisting of Zoology, Geology
 & Mineralogy, Botany and Conchology, it is
 proposed to fill up as far as can be from among
 the Medical Corps that will be attach'd to the
 Expedition, if however none of the Medical offi-
 cers of the Navy can be found sufficiently quali-
 fied or willing to undertake to become [princi-
 pals] in any of these Departments, then I would
 suggest that there be appointed the following,
 viz —

Two persons for the Zoological Depts.
 One " " Botany.
 One " " Geology & Mineralogy
 One " " Conchology. . . .

All the appointments that may be made to fill
 the above Scientific Situations, to be Naval
 appointments, so as to place them entirely
 under the control and direction of the
 Commander of the Expedition." To this,

Poinsett commented on the back of the last page of the memorandum: "The first part...is concurred in but it would appear injudicious to dismiss entirely the whole of the Scientific Corps, the number designated by the memorandum may be formed too small to be carried into effect without creating much clamour." He thought most literary and philosophical societies might agree to some diminution in size of the corps. Assistants may be taken from the medical officers. As for control, "the Civil Corps may have either such temporary Naval appointments or be so subjected to the rules & regulations of the Service as may place them under the direction & control of the Commander of the Expedition."⁵⁰

By 2 August 1838, John Torrey had heard that the exploring expedition would "sail (so they say) on the 10th" — "without Johnson, Hoyle, Eights, young McMurtrie and some others."⁵¹

Eights, who must by this time have known what was coming, wrote from Albany to James K. Paulding, Secretary of the Navy, 8 August 1838: "Not having received any orders from the Department since having reported myself to Commodore Jones, on board the *Macedonian*, in Nov: last, & feeling considerable anxiety on the subject, as the fleet is on the eve of sailing: Will you permit me most respectfully to enquire if I am still considered by the Department as being a member of the Scientific Corps of the Expedition."⁵²

Evidently, Eights never had official notice that he was being passed by. On the same date as the last, he wrote to John Torrey: "On my return to the city a few days since I found your letter laying on my table and am heartily rejoiced to hear that you are employed in a work of the kind mentioned, for I certainly do think it will prove of the utmost importance to the votaries of science, particularly to such as are devoted to Botany. I have shown the prospectus to several of those last and they unanimously coincide with me on the subject. Friend Bloodgood is at present from home with his family; on his return I shall take the earliest opportunity of seeing him on the subject. Our Academies also and our Seminaries are for the

present closed in consequence of their vacations.

"I think the best plan you can pursue is to forward a few copies of the present number (say two to each) to some of our booksellers accompanied by a subscription list attached to the prospectus. O. Steele, W.C. Little & by all means E.W. & C. Skinners, and I will do everything in my power to favour your views, particularly in Newspapers articles &c.

"I sincerely rejoice that Gray has received the appointment you mentioned for he richly deserves it. Yea, and a much better one to boot.

"And now be so kind as to give me some information respecting the Corps of the Expedition, for I have no means at this place of obtaining any that can be relied upon, farther, than what I occasionally see in print. I of course am one of the defunct, having received no orders since last fall. Who are going & what are their respective departments? And more particularly, is J.N. Reynolds one of them? How are those that remain behind to proceed not having received any notification from Government on the subject? Is such a thing as a notice to be expected? And lastly if there is such a thing as remuneration for them, what is it & how to be obtained. Now Dear Sir your friendly advice on these last questions will be most gratefully received by

Yours
Very respectfully
James Eights
North Pearl St. Albany."⁵³

There was a rapid-fire series of events, some of omission, some of commission. Couthouy wrote to Secretary Paulding from on board U.S. Ship *Vincennes* on 12 August 1838, drawing attention to a matter of fairness that had been overlooked: "I should feel myself guilty of neglect of duty towards the other members of the Scientific Corps & especially those who are left out of the present arrangement, were I not respectfully to solicit your attention to the following statement.

"When in New York in Nov'r last under the command of Comm. Thos Ap C. Jones, the Corps were ordered by him to procure all their

own stores, as it was intended they should mess by themselves. Accordingly thirteen of them contributed the sum of \$120 each, for the purchase of the necessary articles & appointed me their agent in the premises[?]. Stores to the amount of about \$1600— were provided accordingly under the impression that we were to sail in a few days....

"We, or those of us still attached to the Expedition are distributed in three vessels, and ordered to mess with the officers, who refuse to take *our* stores, as the perishable is now old, & the furniture &c. is not deemed costly enough. I have therefore been obliged to dispose of them as I best could, at a loss of \$576—...or about \$44.30 to each contributor. As this loss was not sustained from *any* fault on our part, but in consequence of Government having changed its views...I would respectfully submit to the Department, whether in justice it should fall upon the Corps or if...relief should not be granted us. It would seem to fall with peculiar severity upon those who remain behind — and we who go, have in addition to contribute over \$200 each as a mess outfit, without even the privilege of expressing our opinion as to whether we deemed so large an amount necessary. We had in the first instance organized as a strict temperance body — admitting no wines &c. to our table. We are now called upon to contribute a large sum for the purchase of those articles to the use of which the majority of us are on principle opposed. It would seem hardly just, that in addition to this, we should be called upon to lose so large a sum, in consequence of our superiors having changed their views.

"In making this statement I have been actuated solely by a sense of duty to those who entrusted me with the funds & provided *they* were made whole, I would most cheerfully relinquish my individual claim for relief....P.S. The names & residence of the contributors were as follows..." — he lists 13 men, including himself (evidently Johnson did not contribute), four of whom had been dismissed, one resigned.⁵⁴

On the eve of the sailing (which was 18 August), Wilkes accounted to Paulding his apportioning of the Corps: On the *Vincennes*, Couthouy, Pickering, Drayton (artist), Bracken-

ridge (assistant botanist, later "horticulturalist"), J.G. Brown (repairer of instruments); on the *Peacock*, Peale, Dana, Hale; on the *Relief*, Rich, Agate (portraitist and botanical painter).⁵⁵

Apparently, the only dismissed member of the original corps to have formal notification of his status was none other than Jeremiah N. Reynolds, perhaps because he never ceased to make his presence known by frequent visits to high places.⁵⁶

While the matter of formal remonstrances by the dismissed members of the Corps must be postponed, there are a few rag-tag ends now that will close the matter of James Eights and the by-now departed exploring expedition. On 17 September 1838, Eights wrote from Albany to Asa Gray (care of John Torrey, New York), with reference to the money Couthouy had managed to collect by selling the unwanted stores of the corpsmen: "Inclosed I send you Couthouy's order for *Thirty Dollars* which you can transmit to me in notes of your City Banks by some early opportunity. At the time I paid C. the amount of my contribution I also gave him an additional *Ten Dollars* to purchase at Boston some cheap linen pantaloons similar to some of his own, this he neglected to do, no doubt in consequence of the uncertainty of the individuals to be selected to accompany the Ex: since then, however, it appears to have escaped his memory. I do not know that you consider yourself authorized to return it from the funds you hold of his but I sincerely wish you would, for I shall be most sadly in need of it e'er long. I feel perfectly convinced that he would have not the slightest objection to your doing as he himself would have done had he been reminded of it. Let me know when you start for your new station, likewise, what success your new work meets with for I feel some interest as to its welfare."⁵⁷

On 17 September 1838, Joseph Couthouy wrote to Secretary Paulding from Funchal, Madeira, that "a very important and costly work...purchased for the Exploring Expedition, is not on board any of the vessels." He referred to *Coquilles Fossiles*, by Deshayes, "in several Quarto volumes." "It was taken charge of last

October by James Eights M.D. of Albany...and is doubtless still [in] his possession." It would be important "at our return," since the great standard of European geologists. Eights had, of course, notified the navy office at Brooklyn the previous February that he held the work in question. Eights, when asked to return the work, explained the circumstances in a letter to Paulding 23 November 1838: "...The Department has been correctly informed, that a work...was in my possession. It was purchased by Mr. J.P. Couthouy at Boston, in numbers, and there bound. When placed in my hands, it was discovered to be imperfect to a considerable degree, and was retained, for the purpose of having it exchanged — No opportunity occurred, and not having been notified that I was not to accompany the Squadron, until it had sailed, I, consequently, was unable to place it in the Library of the Expedition.

"...I have forwarded it by the most direct and safe conveyance, which the enclosed receipt, I trust, will amply bear witness." It was accompanied by a receipt signed by the boating agent: "One Paper Package said to contain Three Books."⁵⁸

It seems appropriate to put here Eights's immediate appeal for justice. The long battle over compensation, in the halls of Congress, will be covered later. Meanwhile, Eights put his claim directly to Secretary of the Navy Paulding. From Albany, 21 September 1838, he wrote: "May I be informed by the Department, if it is the intention of Government, to allow any compensation to such members of the Scientific Corps as have not been selected to accompany the Expedition under its present organization, as an indemnification, for losses they may have sustained, in consequence of holding their respective appointments.

"For my own part, I deem it a duty, in justice to myself, briefly to declare, that, when I had the honour to receive my appointment from the Secretary of the Navy, in the December of 1836, constituting me a member of the Scientific Corps, I was employed in the service of the State of New York, as a Geologist in their Geological Survey[,] which situation, I was immediately compelled to relinquish, on the

acceptance of the said appointment, from which time, I was kept without compensation of any kind, until the fourth day of July 1837, (a period of full six months) at which date, I was for the first time placed under pay. And, that, during the last winter, situations of the same nature, in two other States were tendered, and likewise declined from the same Cause. These Situations have since been permanently occupied.

"After reporting myself to Commodore Jones on board the *Macedonian*, in November last, we were daily under the expectation of proceeding to sea, and was [!] continually urged by the commander, to keep ourselves in perfect readiness for immediate departure; Consequently, the principle [!] portion of my pay was expended in the purchase of such articles as could alone be used on the Expedition, and which can be of no earthly service to me in any other capacity whilst on shore.

"I deem it also necessary, to state, that, when the fleet was under sailing orders, at the Navy Yard, (Brooklyn) that I paid into the hands of the Caterer of the Corps, Mr. J.P. Couthouy, the sum of 120 dollars, as my share to a contribution for stores for the mess. A few days previous to the sailing of the Expedition from Norfolk, I received a letter from that Gentleman, inclosing an equivalent to the amount of 80 dollars: there being a deficiency of 40 dollars in the disposal of the purchased articles, which he attributes altogether, to injuries sustained in consequence of the various delays in the Departure of the Squadron. This deficiency he informs me, he had understood, would be made up by Government, if so, I should be happy to have it included in my accounts, yet in the hands of the fourth Auditor for Settlement.

"And now Sir, with the foregoing statements, I leave to your consideration the question, If I am not in justice, entitled to some compensation, so as to enable me to regain an equal situation in life, to that I occupied, when the appointment from the Department was conferred upon me."

What reply Eights received I do not know but evidently it was the routine one of asking for clarification of his precise connections. His

reply to the latter was addressed to Paulding from Albany on 21 November 1838: "Your letter of the 26th ult came duly to hand — I received my appointment on the 28th day of December 1836. — Was put on pay July 4th 1837. — I relinquished my employment under the State — held myself in readiness to obey all orders from the Department — Was occupied most of the time in a thousand matters appertaining to my labours in the Scientific Corps — Was at heavy expences [!] in procuring articles for an absence of three years — And, at the sailing of the Expedition, found myself thrown out of all employment, with all my plans deranged — feelings injured, and ambition depressed — I set no price on the injuries I have sustained, but leave the Department to act in the premis [?] in accordance [!] with its own sense of justice."⁵⁹

Thus, the bursting of the Great South Sea Bubble for James Eights. His further efforts for redress, along with notes on his concurrent activities that chart his life in the decade of the 1840s, will occupy the next chapter.

NOTES

1. Benjamin Franklin Butler (1795-1858), who had held various county and state offices, was a member of the law firm of Martin Van Buren in Albany, as well as a power in the coterie of politicians known as the "Albany Regency." He was U.S. Attorney General for five years, beginning in 1833, and temporarily added to it the duties of Secretary of War 1836-1837 — all undertaken with the understanding that appointments would not interfere with his law practice in New York. See D.S. Muzzey. Eights's letter is National Archives (hereafter NA) microfilm 75, I: 0066-7.

2. NA microfilm 75, I: 0067-8. Edwin Croswell we shall hear from later. Mahlon Dickerson (1770-1853), Secretary of the Navy 1834-1838, had a lukewarm love for the expedition and, perhaps, for government activities of any sort. A former governor of New Jersey, he was one of its senators 1817-1833; see C.R. Erdman, Jr.

3. Accounts of the great exploring expedition are many, most of them paying scant attention to an aspiring naturalist who was first named to the scientific corps, then denied a position when the day of sailing came. A start at understanding the aims and accomplishments of the expedition may be had in Meisel, *Bibliography of American History*, 2: 660-673. For a more detailed analysis, including published results, see: D.C. Haskell, *The United States Exploring Expedition...and Its Publications 1844-1874*. H.H. Bartlett, "The reports of the Wilkes Expedition, and the work of the specialists in science," has useful notices of biological results of the expedition. He had too tender a

regard for Secretary Mahlon Dickerson and seemed not to care for J.N. Reynolds at all. Part of the trouble is a feeling that what happened is what ought to have happened. In such a view, unsuccessful candidates for the scientific corps are nobodies — or dissidents. K.J. Bertrand's *Americans in Antarctica 1775-1948*, is the best short account for putting the expedition in its geographic setting and giving Eights his due; see especially pp. 159-197. Pertinent to us are two especially good histories of the expedition: Philip I. Mitterling, *America in the Antarctic to 1840*, pp. 104-119, 120-ff.; and William Stanton, *The Great United States Exploring Expedition*, pp. 31-72. For a handsomely illustrated account of the expedition, see Herman J. Viola and Carolyn Margolis, eds., *Magnificent Voyagers*.

4. Gerrit Y. Lansing (1783-1862) was an Albany Jacksonian politician. NA microfilm 75, I: 0077-8. The nature of contents of the package is not clear.

5. NA microfilm 75, I: 0478. Oddly, the letter is quite clearly dated by Beck himself "Nov 2, 1834."

6. NA microfilm 75, I: 0495. Edwin Croswell (1797-1871) was editor of the *Argus*, a faithful Jacksonian and Printer to the State.

7. Butler's letter is NA microfilm 75, I: 0519; the list of books is 0516-9. The latter, as well as the supporting letters, will be documented separately.

8. NA microfilm 75, I: 0492-3; bracketed words are best guesses of bound-in matter.

9. NA microfilm 75, I: 0498-9.

10. NA microfilm 75, I: 0505. Azariah Cutting Flagg (1790-1873) was in the New York Assembly, 1823, and was N.Y. Secretary of State, 1826-1833, and State Comptroller, 1834-1839, 1842-1846 (*Who Was Who*, 1967, p. 252). For Croswell of the *Argus*, see note 6.

11. NA microfilm 75, I: 0507. Martin Van Buren (1782-1862) became the eighth U.S. president as a result of the election of 1836.

12. NA microfilm 75, I: 0554. After this rousing endorsement, one is hardly prepared for Torrey's letter of 3 Dec 1836, with its vehement denial of having endorsed Eights's geological competence. Only the most perceptive politician would suspect from the first letter that Torrey thought Eights not fitted to serve as geologist of the expedition. 13. NA microfilm 75, I: 0551. Also printed in Henry *Papers*, 3: 122-123, with excellent editorial commentary, f.n. 1.

14. NA microfilm 75, I: 0561, 0562. Boyd was an assistant with Eights under Vanuxem, 1836; he was assistant to James Hall, 1837; he worked with the Virginia Geological Survey, 1838, d. 1840 (I can find no birth year) — see D.W. Fisher, "Emmons, Hall, Mather, and Vanuxem," p. 36.

15. NA microfilm 75, I: 0565-7. There is a scrawled note, partly illegible, by James Eights in a corner of the letter to the effect that the Vice President of the Third Department (Bloodgood) was out of town for a few days; the rest of the note perhaps indicates that the sending of the letter would be delayed until his return, for he did sign it. There is an annotated printed list of officers of the Institute for 1836 attached; Jonathan Eights ("my father") was one of the vice presidents — but did not sign; curator Lewis C. Beck had by then joined the Natural History Survey; curator T. Romeyn Beck had written previously. To account for ambiguity in presidents and vice presidents, Eights noted that Institute vice presidents were presidents of a department.

16. NA microfilm 75, I: 0599-0601. This letter is reprinted in M. Dickerson, HED Document 147: 201-202 as well as in the *Henry Papers*, 3: 125-128; the latter has valuable notes. Dana's biographer, Gilman (see Note 30), p. 53, claimed not to know who had first proposed his candidacy but supposed (no doubt correctly) it to be Gray; Dana was reluctant to accept, when Reynolds visited New Haven and at first suggested it. He shortly afterwards declined and only changed his mind when Gray agreed to join the expedition.

17. I have this letter from Dickerson to Eights from Char Miller, who had received it from Herman Viola. According to Bertrand, *Americans in Antarctica*, p. 191, note 14, it is in Miscellaneous Letters Sent ("General Letter Book") by the Secretary of the Navy, Jun 1798-Nov 1886, Record Group 45, National Archives, folio Sep 28, 1836-Aug 21, 1837, p. 123.

18. NA microfilm 75, II: 0027.

19. Dickerson, HED 147: 2-3. Fanning was annoyed at Reynolds and thought Reynolds deserved less credit for the final favorable turn of events than the latter believed. Fanning spelled out his convictions at length again in his *Voyages* (2d ed., 1838, pp. 154-167).

20. For Torrey-Gray list, see NA microfilm 75, I: 0516-ff. Torrey's letter of 3 Dec is the same, p. 0599-601; also *Henry Papers*, 3: 125-128, with copious notes, and Dickerson, HED 147: 210-202. As for Reynolds and Jackson, the latter had early fallen under the spell of the former. On 9 Jul 1836, the president sent Reynolds along to Dickerson with his own hastily written (and somewhat ambiguous) letter of appointment: "J.N. Reynolds is appointed corresponding secretary to the commander of the exploring expedition, with a salary of \$2,000; his stores to be found by the Government. His duties shall be to collect such information as shall be given to his charge; and to condense the reports made to the commander by the scientific members of the expedition, to be transmitted to the head of the Navy Department" (Dickerson, HED 147: 14). A.H. Dupree, *Asa Gray*, pp. 57-73, makes it clear that Gray (in every way, one of Torrey's darlings) did not so disapprove of Reynolds. In fact, Dupree wonders why so much anti-Reynolds sentiment has crept into histories of the Wilkes Expedition. In all ways, Dupree sees Reynolds as a prime mover and a useful talent scout. In this he is joined by William Stanton, *The Great United States Exploring Expedition*, in tending to give Reynolds his due.

21. Stanton, *The Great USEE*, pp. 34-46; Bertrand, *Americans in Antarctica*, pp. 161-164; Bartlett, "The reports of the Wilkes expedition," pp. 613-615.

22. Stanton, *The Great USEE*, pp. 47-48. Artists were hard to find and a civilian astronomer who would take the job proved impossible to smoke out of the entire country; see Stanton, pp. 48-49.

23. NA microfilm 75, II: 0300-1; Dickerson, HED 147: 359.

24. Dickerson, HED 147: 373; Stanton, *The Great USEE*, p. 52.

25. NA microfilm 75, II:0323.

26. When this letter was written, Eights was already in Philadelphia. This letter is in "Letters sent by the Secretary of the Navy 1798-1886," folio 1836-1837, p. 478; two words are transcribed uncertainly. On 10 Aug 1837, a letter from Dickerson to Dana (also already in

Philadelphia) notified him to repair to Philadelphia; a travel allowance of 10 cents per mile was offered; Dickerson, HED 147: 403.

27. NA microfilm, 75, III: 0012-3. Philips's precise sponsor and where he had obtained his expertise are not clarified in this letter.

28. Dickerson, HED 147: 406.

29. NA microfilm 75, III: 0094-5; Dickerson, HED 147: 409-410.

30. Dana to Herrick, Philadelphia, Aug 1837; see: Daniel C. Gilman, *Life of James Dwight Dana*, p. 56. Dana can hardly have believed, as his biographer did (p. 407), that this was "Dr. Jonathan Eights"!

31. NA microfilm 75, III: 0127.

32. The book list covers some 21 pages of NA microfilm, 75, III: 0188-0202; see printed version, Dickerson, HED 147: 429-444.

33. NA microfilm 75, III: 0212-3.

34. Dickerson, HED 147: 448-449.

35. NA microfilm 75, III: 0246 (2 pp.).

36. Dickerson, HED 147: 428-429.

37. Dickerson, HED 147: 482-483. Couthouy (pp. 483-484) claimed the absence of the gun on the original list was an oversight; that it was intended to be one of six allotted for the general use of zoologists, each of whom was expected to collect for others when they were separated. Reynolds was later to claim that the flap over the gun was another of Dickerson's annoying actions: that Couthouy had bought a gun for \$55 — since Dickerson had allowed \$60, he denied the legality of the purchase! (J.N. Reynolds, *Pacific and Indian Oceans*, pp. 494-495).

38. Dickerson, HED 147: 488, 489; NA microfilm 75, III: 0364-5. Why the books purchased so far were "chiefly for Eights" is not apparent.

39. Dickerson, HED 147: 494-495; also NA microfilm 75, III: 0379-80.

40. Dickerson, HED 147: 505-506; NA microfilm 75, III: 0430-1. Reynolds, *Pacific and Indian Oceans*, pp. 514-515.

41. Dickerson, HED 147: 507-511, plus appendices; Stanton, *The Great USEE*, p. 54, called these "non-sailing directions," believing that Dickerson meant the directive to eventuate into another of his delaying ploys. Pessimists were right: Scientists were going to eat their Christmas dinner not on the high seas but in this country.

42. NA microfilm 75, IV: 0082-ff. For the troubled ending of the Dickerson-Jones years of the expedition, see: Bertrand, *Americans in Antarctica*, 162-164; Stanton, *The Great USEE*, pp. 58-59, note 15, p. 389; Mitterling, *America in the Antarctic*, pp. 124-128. Reynolds's pamphlet was entitled *Correspondence between J.N. Reynolds and the Hon. Mahlon Dickerson...touching the South Sea Surveying and Exploring Expedition...1837-38*; Eights gave a copy to the Institute, as recorded in its "Catalogue" in April 1838; the partisan Jacksonian *Argus*, Anon., 8 Feb 1838, duly defended Dickerson and henceforth had no good word for Reynolds (although neither name was mentioned).

43. Stanton, *The Great USEE*, 61-62. Joel Roberts Poinsett (1779-1851) was a naturalist of some substance and an able — even anxious — administrator. H.H. Bartlett, "The Reports of the Wilkes Expedition," pp. 615-617, pays tribute to Poinsett's useful influence in the final launching of the expedition and the larger results of it.

44. Stanton, *The Great USEE*, pp. 62-63.

45. J.E. to C. Ridgley, 10 Feb 1838, APS Library. The book was Gérard Paul Deshayes, *Description des Coquilles Fossiles des Environs de Paris* (Paris, 1824-1837).

46. Wilkes to Poinsett, 1 May 1838; Poinsett Papers, 10-100, Historical Society of Pennsylvania. Wilkes's references to this trimming of the corps in his *Autobiography* is slight; there is no reference to Eights; references to Reynolds are not very substantial: he tritely accused Reynolds of being the dupe of Symmes. He intimated that Reynolds was too big for his britches (no doubt a matter of importance, in Wilkes's spit-and-polish image of himself); see pp. 322, 323, 358. Peale and Wilkes did not long maintain such a unified view of matters!

47. Reynolds, *Pacific and Indian Oceans*, pp. 479-483.

48. NA microfilm 75, IV: 0311.

49. NA microfilm 75, IV: 0303-4, 0355-6. For Gray's biographer's account, which I have stinted here, see A.H. Dupree, *Asa Gray*, pp. 66-67. In Wilkes's letter to Paulding (by then Secretary of the Navy), he wrote: "I have the honor to request that the following gentlemen conforming the Scientific Corps to accompany the Expedition may receive orders to Report themselves on board to me prior to the 5th of August. Viz....Pickering, Couthouy, Drayton, Peale, Dana, Gray, Agate." According to Gilman's biography of Dana, much uncertainty reigned as to who was going and who was not as late as an otherwise undated July 1838 letter to E.C. Herrick (p. 57); Dana "had some doubts about myself when I left...New Haven. I have since found that Gray, although he has handed in his resignation, will consent to go; and as this removes my greatest objection I have no reason for further hesitation. Gray held out for some time after arrival here, but was at last persuaded to be satisfied with the arrangements." According to Dana (Gilman, p. 63), he and Pickering "united in their efforts to secure an appointment for [Edward C.] Herrick, and it came at last, a few days [ten days, perhaps?] before the time appointed for sailing"! He had not time to settle his affairs and declined the offer. I have not seen this appointment otherwise mentioned: Evidently the makeup of the corps was more fluid than Wilkes made it out to be. Dana, without further explanation, still went, even though his two most valued friends did not. See also A. Gray, *Letters*, I: 65-67.

50. NA microfilm 75, V: 0013-4. While NA personnel have filed this memorandum near mid-August, it clearly belongs to a more formative stage, although it is not likely that Wilkes had much changed his mind.

51. Henry, *Papers*, 4: 84; British-born Raphael Hoyle (1804-1838), a landscape painter, fell ill and died 12 Aug.; William Birch McMurtrie (1816-1872), a Philadelphia artist, was dropped secretly and at the last moment.

52. JE to Paulding, NA microfilm 75, IV: 0403.

53. JE to Torrey, Torrey Correspondence, New York Botanical Garden. The publication was John Torrey and Asa Gray, *Flora of North America*, the first fascicle of which appeared in July or August 1838; it stopped, short of completion, in 1843. See A.H. Dupree, *Asa Gray* for details.

54. NA microfilm 75, V: 0023-4.

55. NA microfilm 75, V: 0049, 0054-5, 0056. Mitterling, *America in the Antarctic*, p. 128. The presence of Hale was against Wilkes's inclination but enough political pressure had been brought to bear to assure him his place. William Dunlop Brackenridge (1810-1893) was a last-minute addition, an effort to make up for Gray's absence and for the admitted scientific inadequacies of William Rich.

56. NA microfilm 75, V: 0045. Although he argued to the last in favor of himself and of the integrity of the scientific corps, Reynolds gave up well before he was told 13 Aug that he would not be on the expedition (Stanton, *The Great USEE*, p. 68). According to Stanton (p. 71), Reynolds and Asa Gray "went up to Saratoga Springs to think on other things for the first time in many years" and did not bother to attend the gala celebration in Norfolk of the fleet's eminent departure on 25 Jul. Just when they went there and how long they stayed (and whether they went together or their visits happened to coincide), I do not know. Gray was obviously a footloose young man. He sent word of his decision to separate himself from the expedition on 10 Jul; on 19 Jul, he left New York City to hear urgings that he reconsider. Even if this were a turn around trip to Washington, he must have hurried straightaway to Saratoga Springs to be there on the 25th. What he and Reynolds talked about must have reconfirmed him in his decision to give up the expedition, a decision that on 6 Aug he announced to his father. He was by then in New York City, on his way to Michigan. Gray, *Letters*, I: 67.

57. Harvard University, Library of the Gray Herbarium. Used by permission. Presumably the "new work" was the flora written with Torrey, referred to above, but the "new station" was Gray's appointment to the professorship of botany at the formative University of Michigan. See Dupree, *Asa Gray*, pp. 67-73.

58. NA microfilm 75, V: 0082, 0117-8.

59. D.B. Tyler, *The Wilkes Expedition*, p. 29; NA microfilm 75, V: 0085-6, 0114. In this era, too, Reynolds continued his attack upon Poinsett, clubbing him for his role in weaseling when confronted by John W. Randall just before the fleet sailed and asked whether he was to go. According to Reynolds, Randall got only the most evasive replies from both Paulding and Poinsett — and refused on principle to wait to see Wilkes, to whom they referred him!

REMONSTRANCES, REACTIONS AND THE 1840s

“GOOD FOR NOTHING CLAIMS...”

The great exploring expedition was on its way. Asa Gray had lately quit the game for what promised to be greener pastures. Lieutenant Matthew F. Maury at last declined to accompany Lt. Charles Wilkes. As for the scientific corps, some reputations were enhanced (that of Dana, notably), some (that of the Sunday-afternoon botanist, Rich) merely confirmed. Joseph P. Couthouy, with a head of his own and a good one at that, crossed Wilkes and was sent home. Titian Ramsay Peale survived the journey but Wilkes suppressed and replaced his final report with one written by a nonparticipant. And, scattered in disarray, most of them knowing only by the newspapers that they had been left behind, were the members of the corps to whom Wilkes had taken a dislike: James Eights, Walter R. Johnson, Reynell Coates, J.R. Randall, artists Raphael Hoyle and William Birch McMurtrie and two assistants — and, of course, whatever station one might assign to him, Jeremiah N. Reynolds.

With careers interrupted and much out of pocket, what course of action was available to those in search of redress? Secretary James K. Paulding had little to offer except for them to take their cases to Congress, which he referred to as “the Residuary Legatee of all old good for nothing claims.”¹

In addition to initial letters cited in the previous chapter, James Eights tried his luck again on 26 February 1839, when he wrote to Secretary Paulding (left margin of letter bound in, word-elements supplied by guess): “[Sir] /

May I be informed, if the Department [has] yet taken into consideration the nature [of my] application for compensation. — for losses [susta]ined, in Consequence of holding an appointment [in the] Scientific Corps of the Exploring Expedition? [As m]y plans for the future must chiefly [depend] upon the determination, I necessarily [am] extremely anxious to be relieved from the [unple]asant uncertainty in which I find [myself] so unfortunately placed.”²

As might be expected, the mills of Congress ground exceedingly slowly. It appears that Reynell Coates and Walter R. Johnson were the first scientists who actually carried their cases to the Congress. In February 1840, the Senate Committee on Naval Affairs reported on their claims. Along with a lecture on the dangers incident to the life of a public servant (“less hazard to run, as to compensation...[but] often subjected to difficulty from the precarious tenure of their offices”), the Committee agreed that they ought to be paid for the six months between appointment in December 1836 and July 1837. They ought further to be indemnified for useless outfit and losses on resale of mess provisions. Other claims were denied — the total awarded to each was \$1,790.87.³

It would appear that Coates (his first name is variously spelled Reynell and Reynall) and Johnson appealed their case, for on 25 January 1842, Mr. Mangum of the Senate Naval Affairs Committee agreed with the former Committee report (Strange’s) “relative to petitioners, who were members of South Sea exploring expedi-

tion under Commodore Thomas Ap Catesby Jones, and who suffered losses through unceremonious and unexpected exclusion from service, etc." Which is to say, they were denied compensation for additional claimed losses.⁴

Getting no satisfaction from Paulding, Eights tried diffidently to go the congressional route. He wrote Samuel L. Southard, once President Adams's Secretary of the Navy, now a U.S. Senator from New Jersey, 15 December 1840: "In December last, I perceive it was, that through your kindness the memorial of Reynell Coates & Walter R. Johnson was presented to Congress, praying for pay for services rendered, and remuneration for losses sustained in the purchase of outfits whilst holding their respective stations as Naturalists in the South Sea Surveying & Exploring Expedition — . Now Sir, as I had the misfortune to receive, at the same time the like appointment, and having claims of the same nature, would it be taxing your kindness too far, to ask of you the favour of presenting a like memorial from me? (in case you think my name cannot be introduced in the article referring to them) — As I have but little knowledge with the forms of business in your Hon. body could I not likewise obtain through your means, a copy of the memorial of those gentlemen?, so that I may be enabled to place my grievances in due arrangement for publication.

"Perhaps, Sir, it may not be improper to give you a brief statement of my case. I received my appointment on the 28th of December 1836 — was put on pay July 4th 1837 — I relinquished my employment under the State — held myself in readiness to obey orders from the Department [—] Was occupied most of the time in a thousand matters appertaining to my labours in the Scientific Corps — Was at heavy expenses in purchasing outfits for an absence of three years — declined several invitations to take an appointment as geologist in two of the U.S. at least, in consequence of holding my situation in the Scientific Corps, and, at the sailing of the Expedition found myself thrown out of all employment, with all my plans deranged — feelings injured & ambition depressed — By conferring the favour of your assistance and advice in this matter, Sir, you will place me

under the deepest obligations of gratitude to your kindness."⁵

There is no evidence of a reply, but Southard probably was responsible for having Eights's name attached to a House amendment to the Senate finding. On 25 May 1842, the House Committee on Claims, Mr. Cowen, chairman, in "Report on petition of R. Coates, W.R. Johnson, and J. Eights," argued the cases fully and held that the government was making a "binding promise." The Secretary of the Navy ought to estimate the claims and act accordingly. Just how much better off the claimants would be under this view is not clear; it was based entirely upon time lapsed after being called to duty, without reference to mess arrangements.⁶

Whether Eights pursued the matter any further is not known. Maybe he got some sort of settlement and gave up. Maybe he just gave up. Anyway, the next one finds on the matter of claims is that of Senator Pearce, 7 March 1844, "Report on memorial of R. Coates, W.R. Johnson, and W.B. McMurtrie." "Senator Pearce reports adversely to claim for additional salary for services on South Sea expedition; allowances for loss of outfit recommended." Claimants could request recompense only for items made for the definite purposes of the expedition, and so on: The Committee estimated losses of \$400 each to Coates and Johnson, \$350 to McMurtrie.⁷

The final round (one supposes!) came on 10 June 1858, when Senator Mallory stared down upon Reynall (as spelled here) Coates, the remaining memorialist. He tersely decided Coates's renewed request by reciting in full the report of Senator Pearce of 1844. He ended: "On memorial of Reynall Coates, praying compensation for losses sustained and services rendered while with the scientific corps of the South Sea exploring expedition. Committee report adversely."⁸

OTHER MATTERS

One has no reason to doubt that James Eights was bitterly disappointed in the entire matter but what one might call truly personal

accounts or comments or reactions are virtually nil.

One gathers that he continued to find some solace in meetings of the Albany Institute. Institute Minutes, Curators' Reports and the like record Eights as donor of specimens and books from time to time between 1837 and 1843 (donations are hardly ever itemized). But the Institute was a weak reed in those days, despite the regular meetings, election of offices, and the welcoming of new members. Perhaps members had their hands full staying alive professionally or politically. Perhaps it was a sign of the times merely: A time when the talent needed to keep an organization vitally alive was not so much entirely missing as engaged elsewhere. It is possible that the organization of the Institute into departments served it less than well, especially when no towering genius arose to weld their efforts together. Money, as always, was a problem: At a meeting 23 September 1841, there was consideration of money due "the late firm of Packard & Van Benthuyzen for printing a portion of Second Volume of the Transactions... incurred in 1833 & 1836": a total of \$354.66. Charles Van Benthuyzen settled this for a five-year note for \$275, "with interest," and an honorary membership. Whether he got his money is unknown. He certainly got little from the Institute for his membership. The Institute apparently held no meetings between 14 April 1843 and the reorganizational meeting of 6 March 1851.⁹

To some extent, too, talent was spread thin. Geologists of Albany remained in regular contact, due in part to the continued activities, even if now somewhat diminished, of the State Natural History Survey, in part to the camaraderie born of their closeness during the exciting days of that Survey. It appears possible that Eights participated in some of those friendly meetings.

One or another of the New York geologists proposed that a national meeting of geologists ought to be organized. And so, at the home of Ebenezer Emmons, Sr., 20 November 1838, Mather, Emmons, Hall, and Vanuxem, together with at least Conrad and young Ebenezer Emmons, held what became the founding meet-

ing of the American Society of Geologists. The presence of James Eights has been both affirmed and not affirmed.¹⁰

I think it clear that Eights made little effort to shine in scientific affairs of that day. At a time when Albany geologists were actively promoting the American Association of Geologists, which within two years became the American Association of Geologists and Naturalists, then, with no break in continuity, the prestigious American Association for the Promotion of Science (AAAS), Eights kept a low profile. Perhaps because he lacked funds, perhaps for other reasons, he did not attend the first three annual meetings of the Association (1840, 1841, 1842) — two were held in Philadelphia, the third in Boston.¹¹

Thanks to the early instituted policy of holding annual meetings in various cities, Albany's turn came in 1843. From the local committee of the American Association of Geologists and Naturalists, we have a notice from T. Romeyn Beck, Ebenezer Emmons, Sr., and James Hall: "The local committee give notice that the next annual meeting of the above Association will be held at Albany, on Wednesday, the 26th of April next, in the State Geological Museum, in State-street." Certain articles of the Association were quoted: "The objects of the Association are the advancement of Geology, and the collateral branches of natural science; and the promotion of intercourse between those who cultivate them." Further: "All those persons whose names have already been enrolled in the published proceedings of the Association, and those who have been invited to attend the meetings, shall be considered members." Lastly: "Members of societies having in view the same objects...and publishing transactions, shall be considered members upon subscribing to the constitution and by-laws."¹²

The "Fourth Annual Meeting of the Association of Geologists and Naturalists, Albany," was given top billing by the Albany *Argus*. The first meeting on Wednesday was well attended, "many members of the association from this and other states being present — and a large number of citizens and strangers." It was chaired by Henry D. Rogers. Benjamin

Silliman, Jr., was secretary. Emmons explained the arrangement of geological specimens in the Museum, "nearly as possible in the order in which they occurred in nature." Discussion of relative merits of classification systems of mineralogical and geological specimens by various geologists followed. The major paper was read by James Dwight Dana, on certain geological principles, being the result of observations made in the course of the cruise of the Exploring Expedition."

The following day, the *Argus* caught its breath, merely printing "a list of the members of the Association now in attendance at the annual meeting in this city, with their residences": a list of great names of the day, 31 in number. Albany residents were: Matthew H. Webster, James Hall, Ebenezer Emmons (Sr.), James Eights, E.N. Horsford, Ebenezer Emmons, Jr.

On 1 May, there was an exceptionally long account in the *Argus*, by a different reporter, who recapitulated previous sessions and provided a thoroughly interesting account of the meeting with Dana at the rostrum. On 4 May, there was another long account, reporting in detail on Douglass Houghton's work on Michigan sandstones, Henry D. Rogers's account of black shales; there were comments by James Hall; David Dale Owen concluded his account of Western shales. On Saturday, Dana lectured on the distribution of corals, with notice of the work of Charles Darwin. Nowhere is there any evidence that James Eights took part in discussions.¹³

Thus, the decade of the 1840s got off to a slow start. The first real sign of life was Eights's essay on "Origin of guano" (1844) that has been noticed in the history of his southern and Antarctic cruise. This was published in the Albany-based farmers' monthly, *The Cultivator*. Whatever the arrangement in regard to payment for his writings, it was a long-lasting relationship and led to use of his articles by the weekly *Country Gentleman*. His work in these publications will be noticed in their proper places.¹⁴

There followed what must have been a satisfactory relationship (although he was not an

early contributor) with the *American (Quarterly) Journal of Agriculture and Science*, edited in part by Ebenezer Emmons, Sr. The first article was a short one "On the elevated temperature of the waters of the Gulf Stream," a not very satisfactory accounting for a phenomenon that Eights took to be simpler than it was. He was correct to say that the equatorial current that ultimately gives rise to the Gulf Stream is not warmed by the tropical sun; whether the Gulf Stream is warm is dubious — therefore, there is no need to suppose the warmth due to thermal springs of the Caribbean islands.¹⁵

Eights began a series of "Notes on natural history" for the Emmons periodical, number one of which consisted of short quotations from Sir Henry Thomas De La Beche, followed by Eights's expatiations upon the themes cited. He reported on the destructive action of freezing water in splitting columns of rock, both along the palisades of the lower Hudson and in the islands of the Antarctic; he doubted that De La Beche was correct to claim that sharks could not long survive at great depths, having examined those animals when they had been rapidly drawn from deep water. He agreed, on the other hand, that fishes drawn from a great depth tend to have their entrails expand into masses that prevent their return to safety.¹⁶

"On the icebergs of the Ant-Arctic Sea" (July 1846) has been quoted in the chapter on Eights's visit to the Antarctic. He returned to De La Beche and "Notes on natural history," in January 1847, a short essay on nodules of carbonate of lime, accounted of secondary origin, found in clays. Such argillo-calcareous concretions were commonly found by him "in the lacustine marly-clay in the vicinity of Albany." He thought their origin due to downward percolation of carbonic acid along paths made by roots of trees, collecting the lime as it descends. It is then deposited in oddly regular nodules that appear almost too artificial to be of natural origin.¹⁷

The third installment of "Notes on natural history" (May 1847) consisted of his account of Patagonian natural history to which attention has been paid in the chapter on Eights's southward trip in 1829.¹⁸

"Notes of a geological examination and survey of Mitchell's Cave, Town of Root, County of Montgomery, N.Y.," consists in part of a real survey, in part of a humorous spoof of a Sunday lark with friends. Hoping to duplicate instances elsewhere where remains of animals (swept from the earth's surface "long e'er the period of man's existence") were found, they undertook exploration of the cavern. Its entrance was by way of a vertical fissure, some 23 feet in depth. This led to large rooms, these to other vertical passages, all precisely described here, should any serious spelunker care to duplicate the adventure today. In passing, it might be noted that, unless time or the art of man has intervened, adventurers of too large diameter need not undertake the cave's exploration. Eights's group found that "the dimensions of the elder of our companions far exceeded that of the width of the entrance; consequently he was, however contrary to his inclination, constrained to remain without." Their search for bones was entirely unsuccessful, except for a dead bat. In their three days of exploration, they found the length of the cave to be 432 feet, about half in a perpendicular direction, the rest horizontal. Underestimating the power of underground waters to dissolve and carry away soluble materials, he wondered what could have happened to the vast amount of matter that must inevitably have been removed to produce the cavern that is now found. The temperature at its innermost point was 42°F, "in the midst of July."¹⁹

In October 1848, Eights turned to a substantial contribution on economic entomology, "Some of our injurious Coleoptera." The species treated are what he called *Scolytus destructor* (elm bark beetle), *Scolytus piri* (a similar pest of pear trees), *Phyllophaga quercina* (May beetle, etc.), *Bruchus pisi* (pea weevil), and *Lamia titillator* (one of the long-horned beetles whose larvae bore in dead wood). The first two, although tiny, commit great depredations among elm and pear trees; he had little to suggest as to a remedy, aside from removal and burning of infested limbs; he feared that the former would, unless somehow stopped, utterly destroy fine shade trees. May beetles might be somewhat con-

trolled by shaking the short-lived adults out of trees, where "they quietly drop to the earth in great numbers; here they are to be gathered, thrown into boiling water, and fed either to fowls or swine." He claimed that the pea weevil could be outwitted by keeping seed peas in a tightly closed vessel at least two years before planting (the beetles would thus die before they could emerge and lay eggs) — or by dipping seeds in boiling water at planting time. As for "the tickler," *Lamia*, there have been "so few intelligent observers to record their various systems of proceeding, in their devastating progress, that few remedies have been suggested for their destruction."²⁰

With these contributions, Eights's story has gone forward to what was undoubtedly a watershed in his life — the death of his father in August 1848. However, the story has gone too quickly. We have to return to what was his major effort to establish himself after the discouragement experienced in the matter of the exploring expedition. While we know too little about the role of Eights in the affair, he was definitely concerned in the excitement over copper mining in Upper Michigan in the 1840s. The episode turned sour, perhaps with doubly disastrous consequences, since the unravelling of his scheme for getting rich so nearly coincided with his father's death.

MICHIGAN COPPER IN THE LAKE SUPERIOR REGION, 1846

James Eights's relationship to the New-York and Lake Superior Mining Company in 1846 remains nearly as mysterious as it was when I first learned of his publication entitled *Outlines of the Geological Structure of Lake Superior Mineral Region belonging to the New-York and Lake Superior Mining Company*. I shall shortly turn to his account, written for the company's officers and stockholders. My story is not a history of copper mining in Michigan or even of the misfortunes of the New-York and Lake Superior Mining Company. It sticks closely to the role of Eights in the undertaking. Nonetheless, a few references will be cited that touch upon broader matters.²¹

Eights's report, published in 1846, consists of his letters to the Company, dated 14 August and 11 October 1845, together with a mineral analysis dated 9 February 1846. This report and a newspaper letter dated 19 May 1846 constitute nearly everything that has come to light on Eights's part in the venture. While a full transcription seems unnecessary, selected paragraphs will be quoted to show how Eights, as "Geological Surveyor," dealt with his appointment.²²

Eights supposed, in his communication dated 14 August 1845 from Agate Harbor, that he had determined "with some degree of certainty the true position of the most profitable mineral veins." He proposed that the reader look at a map of the southern shore of Lake Superior "from the head of Kaweena [Keweenaw] Bay on the east, to a short distance beyond the great Montreal river on the west, and south to a line formed by a continuation of the Porcupine Mountains, and so on to the last mentioned Bay." From the shore you viewed a series of hills; he divided them into three portions, a nearer, lower range, a middle and a higher, third, range. The third range had so far not been found to be richly metalliferous. This is followed by a more detailed account of the geological structure, most of it sufficiently vague as to cover all possibilities. "It is chiefly where the Trap and Conglomerate come in contact that the heaviest deposit of metals have been found. This, however, should not be considered as being exclusively the case, as some fine veins are to be met with at the junction of the Conglomerate and Red Sandstone. As far as my investigation have extended, I deem myself justified in stating, that I consider the second, or central one, the *true*, or *most metalliferous range*, from the circumstance that all veins traversing the other rocks have their origin in or proceed directly from it. Splendid veins, however have been found, and are now worked to some considerable extent, along the outer or least extensive range." There is further attention paid the second (middle) range; "veins of this range...have hitherto produced the most important masses of Native Copper and Silver." From it, he thought, Major Campbell recently

obtained a mass "weighing about sixteen hundred pounds."²³

He then proceeded to tell about such locations (read: *claims*) that belonged to the Company "that have been more particularly investigated," in the order in which they had been examined. He began with Agate Harbor, "assigned to Mr. Glass," from which he wrote his letter. "This is confined exclusively to the outer and middle ranges, and consequently embrace[s] all the true Metalliferous veins, as elsewhere in every individual instance they have been found in them." Precise boundary lines had not as yet been established, making a more particular survey impossible, because the southern portion was covered by "almost impenetrable swamps and forests." There was evidence of rich veins of copper and other materials in the nearer range, which could be seen from the water: "...on the adjoining location to the east, and but a few feet from the divisional line, a vein has recently been opened that daily yields masses of Native Copper, from the size of half an inch up to some weighing from fifty to sixty pounds....It is my own opinion, and the general belief here prevails, among individuals best qualified to judge, that the Agate Harbor location will eventually prove one of the richest in the entire Mineral District."²⁴

"Mr. Talcott's location on the Little Montreal River, I have not yet personally inspected, but should you cast your eye upon the map you will at once perceive that it occupies a position directly upon the middle, true Metalliferous range." "Some fine specimens of Native Copper have been brought in by the reconnoitering party, which they state were obtained from beneath the overhanging cliffs.... The adjoining location near the divisional line has yielded some splendid specimens of Native Copper."²⁵

"Mr. Green's division, on Eagle River, has been partially examined by the reconnoitering party...Broken fragments of rich veins...are every where to be seen scattered over its surface. As soon as proper facilities are furnished, it is my intention to give it a thorough investigation. It can scarcely prove otherwise than important, being so closely in contact with the rich veins of the Boston Company."²⁶

"The Great Montreal River locations are all situated in the central range of Trap...the first or outer range being entirely wanting. This whole section of country...as far as my observations have extended, I think will eventually prove one of the most important in the whole mineral district of the Lake." Several locations were involved but "Owing to the difficulties to be encountered in traversing a dense and almost unexplored wilderness, and the want of necessary facilities, but one of these locations has been examined by our party, that assigned to Mr. Hudson, and on this *sixteen distinct veins* were observed..." (he goes on to note that it was no more than "an act of justice to acknowledge our obligation to Mr. Cameron, who, on our first landing at the mouth of Montreal river, generously communicated the existence and position of these sixteen veins").²⁷

At the end of this first letter, James Eights was on the eve of departing for the Little Montreal and Dead Rivers, to the southeastward of Keweenaw Peninsula. On 11 October 1845, from Fort Wilkins, Copper Harbor (northern side of Keweenaw Peninsula, near eastern end), James Eights next reported on these and other investigations. "Immediately after the date of my last communication we set out with our boat's crew, on a visit to the locations situated on the river Des Morts, (Death river,) and its vicinity, and after a rough and boisterous passage of four days, reached our place of destination in safety." His report continued with a superficial geological survey of the coast from "point Kaweenaw" and Manitu (Manitou) Island to what St. John called Dead River, thence to Chocolate River, a few miles to the southward.²⁸

Death River enters Lake Superior on the south side of Granite Point and it was here that the extensive claim (No. 20) of S.V. Talcott was found. Eights found veins of Talcose Slate. "These veins when thoroughly explored, with all necessary facilities, will no doubt prove exceedingly valuable, as scarcely in a single instance where researches have been made, that the ores of iron, lead, copper and zinc did not develope [!] themselves to the sight, either in bunches, strings or disseminated masses, and *once or twice* a crystalline mass of a rather doubt-

ful appearance, which strikingly resembles some of the ores of tin were found, but unfortunately the specimens were removed before certainty could be obtained by a proper analysis." The peninsula called Granite Point he considered interesting but containing hardly "a particle of well defined Granite." A long geological account of the area follows and is not quoted here. The presence of copper pyrites led Eights to agree with "the most intelligent Cornish miners in our employ" that the vein would terminate in "Sulphuret of Copper alone. If so, this will prove one of the most important veins on the whole southern shore of the coast." One of the islands he called "Otter Island," from a family of those mammals seen there; at one point, a stratum of granite had decayed into a most perfect kaolin or porcelain earth.²⁹

The adjoining location, to the northwest, No. 21, belonged to G.V. Denniston; its most prominent lakeward feature was "Presque Isle...an elevated, bold and rocky peninsula"; it appeared to be identical in most features with location No. 20. "It may be well to mention that the low sandy portions of these locations, abound in forests of lofty pines, varying in species, which are admirably adapted for ship spars and other highly useful purposes."

"The allotted time for examining these locations having elapsed, we set out on our return voyage up the lake, and after touching at several places along the coast, reached the Government House at Copper Harbor in safety. From thence, after depositing our mineral specimens, we proceeded to Agate Harbor, and in a few hours once more landed at our main encampment."³⁰

The rest of Eights's report was more or less general or reported observations that had come to his attention since his tour. He had not had much opportunity to inspect "the Green location" (this is Location No. 31 on his map), on Eagle River; but, since "situated upon the very crest of the ridge of hills which have been previously mention...as belonging to the central, or most metalliferous range of Trap," he anticipated the discovery of "some splendid veins of metal" ere spring. "The season having at length become so far advanced as to render cruising

on the lake in an open boat a rather hazardous affair, the examination of the other locations, distantly situated, were necessarily deferred until a more convenient opportunity should present itself for the purpose."³¹

The final part of Eights's work for the New-York and Lake Superior Mining Company, so far as known, was an analysis, submitted from Albany, 9 February 1846; it considered a sample of material yielding 79 percent copper; two other specimens yielded copper contents of 23 percent and 19 percent.³²

Eights was not finished with Michigan copper, whatever may have happened ultimately to his venture there. Laid into the Library of Congress copy of Eights's report just referred to is a newspaper clipping, in the form of a long letter addressed to Edwin Croswell. It is entitled "Lake Superior mining region." It is dated 19 May 1846. Unfortunately, the source of the clipping has not been recorded. Croswell was editor of the Albany *Argus* but this letter is not in the microfilm of the daily edition of the *Argus*. Perhaps it was published in the semi-weekly or weekly edition.³³

The letter follows:

"Edwin Croswell, esq.: / Dear sir — In compliance with your request, I send you a brief sketch of the principal portion of the Lake Superior mineral region, and trust it may not prove altogether unserviceable to some of the numerous individuals who may visit that region, during the present season, in pursuit of locations. A remaining portion, situated in the vicinity of the Riviere Des Morts, may be the subject of some future communication.

"The Lake Superior mineral region may be said to have its commencement at Chocolate river, on the east, and from thence, extending in a westerly direction along the southern shore, until its arrival at the Great Montreal river near the head of the lake. At this place — owing to a northern deflection of the coast — it takes an inland range, and finally becomes lost beneath the surface, at some unexplored distance farther to the south-west. Its breadth has not yet been positively determined, but for the present purpose, its southern limit, may be defined, by a direct line from Chocolate river, running due west until it crosses the main branch of the

Montreal; but the principal scene of mining operations appears to be, with few exceptions, confined to the Keweenaw point. This point projects boldly out from the main shore, near the centre of the lake, in an incurved, horn-like form — it is about sixty miles in extent, and at its base has a breadth of about thirty miles, gradually tapering away, until its termination in an obtuse point near the Manitou island.

"The geological structure of Keweenaw point, when properly investigated, appears remarkably simple. It is chiefly formed by a central range of trappeau rocks, flanked, and in many instances partially covered, by its associated conglomerate and red sandstones. Commencing at the extremity of the point, at an elevation of nearly nine hundred feet, it pursues a south-westerly course, and at length becomes merged in the lofty altitude of the Porcupine mountain range. To the west of this last-mentioned range, it reappears, at a point much farther to the north, and continues to the Montreal river, at which place it approaches until within two miles of the lake shore. This I consider the true metalliferous range of the district, as the most extensive, perfect veins, embracing the heaviest amount of the valuable metals, have their origin directly from, and likewise traverse it.

"At no very considerable distance to the south-east, this trappeau range is accompanied throughout its entire course, by one of a more irregular form, and in many instances of an equal if not of a much greater altitude. These hills are chiefly composed of sienitic greenstone, gradually passing on the one hand into the trap rocks, and on the other into those of sienitic granite, with occasional irruptions of porphyry. As this is considered altogether unimportant in a mineral sense, no further notice of it will be necessary.

"This central trap range rises up at a considerable angle from the north-west, until it arrives at its greatest elevation; it there terminates by a series of mural escarpments, or out-crops, facing the south-east, which are covered nearly in the centre, or about midway, with talus or disintegratory rock. This trap is rudely stratified, and consequently its dip must correspond to its angle of elevation, so that in estimating its

thickness, a line should be taken at right angles with the dip or inclination. All the mineral veins likewise, cross the trap at right angles to the course of the range, and have their origin from beneath; as they ascend they divide, and ramify through the mass, and generally appear at the surface in the form of numerous threads or strings, with small particles of native copper and silver profusely disseminated thro' the matrices and walls. Now it must appear evident, that in making investigations, or mining, anywhere along the north-western slope or surface of the trap, that it will become necessary to pass through its entire thickness in order to arrive at the strength of the vein. In doing so, an immense amount of expenditure must take place, both of labor and means; and besides, a vast length of time must necessarily elapse before the mining operations can possibly yield to their respective proprietors a profitable return. A great proportion of all this can, in my opinion, be avoided, by commencing their investigation anywhere along the base of the escarpments over the crest of the ridge, or south-eastern face. The Pittsburg company has done so, and the results are before the public.

"Skirting the north-western base of this central range of trap, &c., and corresponding to it in its course, as far as it is visible above the surface of the lake, is to be seen one of much less elevation and far more uneven in its general appearance; this, likewise, has its commencement at the extremity of Keweenaw point, and has a continuance nearly as far as the mouth of Eagle river, and probably in detached masses, a short distance farther. It forms an exceedingly rough and irregular coast, being everywhere deeply indented by numerous beautiful bays, furnishing harbors that at all times afford to vessels a comfortable shelter from the rude storms that so frequently agitate the waters of the lake; it also creates in great numbers small, rocky, outlying islands, and craggy promontories, some of which being bare and desolate, yield only a resting place to the wandering sea-fowl that frequent the coast, while others are covered with verdure, and are wild and picturesque in the extreme.

"This lower range differs in some degree, in its geological features, from the one last men-

tioned, being altogether composed of trap, amygdaloid, and trappeau (or baked) sandstone, covered by a commingled mass of red sandstone[,] shale, and turfaceous [tufaceous] conglomerate. The surface presents the appearance of having been everywhere broken up into innumerable, small knoby [!] ridges, so as to render it exceedingly uneven, while occasional intervening depressions of some considerable magnitude occur, which give origin to the various cedar swamps, ponds, and morass[es], which are in many places distributed about. These ridges seem to increase in elevation as they approximate to the central range, and assist materially in giving to the slope of the entire mountain chain, that graceful sweep, which so pleasingly strikes the eye of the traveller, on his approach to the coast.

"The trap belonging to this range, gives origin in some places to a prodigious number of small ramifying veins which, in passing through the associated amygdaloid, and baked sandstone, reticulate them in such a manner, as to exhibit on their surfaces the aspect of coarsely formed net-work; this may be conveniently seen at Agate harbor, and a few places elsewhere along the coast. These veins, when properly examined, are often found to contain native copper in minute particles, profusely disseminated throughout the Laumonite, — the mineral by which they are most generally filled. While these veins are confined to the trap, they have not, to my knowledge, at any place, been profitably worked, but as they concentrate at the junction of this overlaying conglomerate, and pass through that rock in broad sparry lands [=bands?], they are frequently found to embrace large quantities of the native metal, and the richest of ores. — This has been sufficiently proved, by the mining operations at Copper Harbor, Agate Harbor, and several other locations situated along its course.

"The principal mining operations of this outward range, has been chiefly confined to the tufaceous conglomerate along the lake shore, and besides the large masses of native copper it has already produced, the ores obtained from the veins are among the finest in the world. — Nevertheless, I feel constrained to add the opinion, that in a comparatively short space of time

they must become perfectly exhausted, or run out; not, however, from any deficiency in the veins themselves, but from the thinness of the stratum that embraces them, and its contiguity to the lake shore, unless it should prove practicable — which is not altogether unlikely — to convey their respective shafts beneath the water in conformity with the dip of the rocks.

"The usual ores found in the veins in connection with the native metals, are black and red oxides of copper, carbonates of copper, carbonate of zinc, and oxide of manganese.

"I have thus in a brief manner, endeavored to sketch out to you the principal features of the mineral regions, and pointed out, in a general manner, the true geological position, in my opinion, where investigations should be made with the best prospects of success, and shall conclude with the hope that it may in some degree prove serviceable. That great quantities of copper do exist in that country, we have every reason to believe, not only from the comparatively low position of the rocks in the geological scale, and consequently nearness to the seat or origin of all metals, but likewise from the detached masses so profusely scattered over so vast an area of country. There certainly must be, according to my views, some contiguous cause; all that it requires is a proper investigation. / Very respectfully, yours, &c., / James Eights. / Albany, May 19th, 1846."³⁴

THE END OF THE DECADE

There is no record that Eights retained any interest, financially or scientifically, in Michigan copper. It is likely that events at home in the latter end of the decade deprived him of motivation to work at anything in a sustained manner. Why nothing showed up in Albany to claim his attention and provide him with income is not clear. Maybe he did not try; maybe there were few positions available; perhaps his loyalties to the wrong people, in the developing storm between James Hall and Ebenezer Emmons, Sr. (to be treated later), intervened.

Whether it had much substance or not, the efforts of the Regents of the State University to find quarters for its Cabinet of Natural History and to expand its holdings to contain aboriginal

artifacts and historical archives in 1847 might have been of interest to Eights. There was certainly little to cheer about at the Albany Institute. Its members had held no regular meetings for years and its reputé sank so low that the Albany Young Men's Association feared the Institute's dissolution and the dispersal of its library.³⁵

Eights had always lived with his parents (and, for many years, at 60 North Pearl Street). That ended with the death of his father Jonathan in August 1848, a matter that has been dealt with in an early chapter. The family then dispersed; even his mother vacated her old home. His mother died in May 1849 and the last semblance of the settled home life to which he was accustomed was at an end. His name was not in the Albany Directory in 1849 (its reappearance in the 1850s will be noted later).

If James Eights had confidants in all this, they have left no better records than he did. Fortunately, a few letters of concern went off to his old acquaintance Joseph Henry, by then at the Smithsonian Institution, where they were saved.

The first solid information we have is from a letter written by his longtime Albany Institute colleague Richard Varick DeWitt to Joseph Henry, 12 April 1849:

"My Dear Sir,

"The call of charity induces me at this present time to trouble you with my correspondence, seeing I have nothing scientific, gossiping or marvellous to communicate as a pretext for trespassing on your time which must be very fully occupied.

"Two years ago, after being compelled by circumstances for more than [than] five years, the prime part of life, to occupy myself for the sake of others, in winding up the tangled web of our Ithaca affairs — I determined to throw overboard the small venture of property I had in the voyage of life — & save myself upon the scanty wreck of my law learning & tastes & practice with the pencil. I opened a Patent Agency, & have contrived with the small occupation it afforded, and some little jobs in conveyancing &c. to pay about half of a scanty livelihood for my family, depending upon the

aid of my children's relatives to eke out their support. So much for myself.

"When I opened my office, I found Ja^s Eights without a comfortable home, at least place of resort during the day, and feeling that I could exercise a salutary influence over him, & make his talents serviceable to me if I needed their assistance — I invited him to take a chair and table in my room. He has been with me in that way ever since, & behaved himself with exemplary steadiness. In only three or four instances and then under peculiar temptations has he deviated from sobriety. His father you know has recently died: this breaks up the family & will after this month, deprive him of a lodgement & a home. He is exceedingly anxious to find something to do in his way, or indeed in any way — and would be content aye grateful for \$300 a year.

"It is a shame that those who have had the disposal of the posts & emoluments of the Nat History of the State, should not have employed a man who knew more of the Geology of N York, when the present surveying commenced operations, than they know now & who in the Zodiac & other publications gave evidence of his abilities as a naturalist. Had he been taken by the hand, & brought under benign influences, he would not have been the man he is said to be, by those who want an apology for neglecting him. However, I do not mean to be his apologist, or endorse his *hasbeen*. My object is to try whether I cannot interest some one to take him by the hand, & give him a chance to do himself credit, & his employers too.

"Is there nothing connected with your Institution which could give him employ at low wages, & under friendly auspices?

"I have not suggested to him, the idea of applying to you, & do it without even his suspicion of my intention so to do. I am afraid if he should once be thrown out upon the world, without employment, he would do some rash act. He broods over his condition & would go any where & do any thing not disgraceful to support himself. He has very nice feelings about debt. Whilst with me he has earned some trifling sums, & with them immediately clothed himself, but has gone very shabby a long while rather than run in debt. If you can in any way

help me in finding a place I pray you do so."³⁶

DeWitt's letter was soon followed by another plea from Albany. On 8 June 1849, James Eights's first cousin, Abraham Eights Williams, wrote to Joseph Henry:

"Dr. Joseph Henry

"Dr Sir

"I can urge no acquaintance of later years, (and only the slight one having been under your care many years since while in the Albany Academy) as an apology for my present intrusion on your attention, nor do I it on my own behalf, but that of my cousin Dr. James Eights. Mr. R. V. DeWitt mentioned that he had written you some weeks since, but receiving no reply apprehends that his letter may not have reached you; if received you will learn of the situation of Dr. E. in some respects. By reason of the death of his father last year, & Mrs Eights during the past month, the family is somewhat broken up, leaving him with no home other than such as his own exertions may enable him to secure. Of his acquirements & qualifications for any particular place your former acquaintance with him will enable you to judge. As no situation suited to his taste and in fact none for which he seems fitted, offers here, Mr. DeWitt was induced to apply to you, hoping that if something can be secured for him it may prevent his falling into the habits from which he seems in a measure freed.

"While I cannot urge this matter, most cheerfully would any effort be seconded which might enable him to secure by his own exertions a moderate competency and at the same time bring him under such influences as would be the means of preventing his falling into habits that must otherwise be the case.

"Any assistance you may render in securing or pointing out a situation will be most gratefully received.

"With much respect / I remain yours truly
/ Abr'm E. Williams."³⁷

Thus ends a busy — but often discouraging — decade.

NOTES

1. D.B. Tyler, *The Wilkes Expedition*, p. 29; various accounts of the expedition are pertinent to these initial paragraphs.

2. Eights to Paulding, NA microfilm 75, V: 0267.

3. Robert Strange, Senate Committee on Naval Affairs, U.S. 26th Con., 1st Sess., Sen. Doc. 229, 25 Feb 1840, pp. 1-2.

4. Willie [pronounced "Wylie"] Person Mangum, Senate Committee on Naval Affairs, U.S. 27th Con., 2nd Sess., Sen. Doc. 67, pp. 1-3, 25 Jan 1842.

5. Eights to Southard, Southard Papers, Box 65, folder 13, Princeton University Library. The archivist confirms date of 1840 (it has sometimes been read as 1841). Southard did not himself present the case of Coates and Johnson but passed their pleas to the chairman of the proper Senate committee; perhaps he did the same for Eights for I find no evidence that he replied directly to Eights.

6. Benjamin Sprague Cowen, U.S. 27th Con., 2nd Sess., H.R. No. 832, vol. IV, 25 May 1842.

7. James Alfred Pearce, U.S. 28th Con., 1st Sess., vol. III, Sen. Doc. 167.

8. Stephen Russell Mallory, U.S. 36th Con., 1st Sess., vol. II, Committee Report 318.

9. Albany Institute records, AIHA archives.

10. D.W. Fisher, "Emmons, Hall, Mather, and Vanuxem," p. 44. No one thought to keep a detailed record of the meeting or even to reconstruct one until over half a century had passed. Eights has been mentioned as present (by J.M. Clarke, *James Hall*, p. 101) but he was by then biased in keeping Eights's name in the limelight. In his account of the placing of a bronze memorial tablet on the Emmons house, at the corner of what was then Hudson Avenue and High Street (a location wiped out in the building of Empire State Plaza: the house razed, the plaque itself apparently destroyed or vandalized) — before he cared about Eights — Clarke quoted accounts of that meeting by both James Hall (1896) and Ebenezer Emmons, Jr. (1900), neither of whom mentioned Eights. See: Clarke, "Memorial tablet on the Emmons House, Albany, New York"; Anon., 1902, "Memorial tablet"; J.A. Holmes, "Proposal for erection of memorial plate on the Emmons House"; J.M. Clarke et al., "Committee on the Emmons House Memorial."

11. C.C. Albritton et al., eds., *Reports of the First, Second, and Third Meetings of the Association of American Geologists and Naturalists* (1843) — both Emmons and Hall attended the first meeting; J.C. Spencer, "Circular from the Committee Appointed by the National Institute for the Promotion of Science in June, 1842"; H.L. Fairchild, "The History of the American Association for the Advancement of Science" (1924) — the AAAS was formally born in 1848, p. 385. Sally Gregory Kohlsted, *The Formation of the American Scientific Community*, "Appendix," has Eights a member of AAAS during the years 1848-1851. This confirms his lack of interaction 1852-1860 but leaves moot his membership or other interest in the parent society, the American Society of Geologists, in the years following 1838.

12. I.R. Beck, E. Emmons, J. Hall, "American Association of Geologists and Naturalists" (1842), copy of announcement in AI.

13. Albany *Argus* Anon., 1843, 27 April, 29 April (list of members, including Eights); 1 May (page 1!), 4 May (page 1).

14. JE, "Origin of guano"; whether JE noticed with interest or not, a step toward the modern age was taken in 1845, when the State of New York passed (10 May) "An act to provide for the safe keeping of the Cabinet of Natural History" (*Argus*, Anon., 26 May): a brave if feeble effort toward establishment of the State Museum.

15. JE, "On the elevated temperature of the waters of the Gulf Stream." For conclusions that the Gulf Stream is an immensely complex phenomenon and not particularly warm, see Henry Stommel, *The Gulf Stream*, pp. 175-176.

16. JE, "Notes on natural history," pp. 219-223.

17. JE, "Icebergs," etc., pp. 20-24; "Notes," pp. 56-57. See a later account of clay-stone nodules in JE's paper on Albany clays (1852), p. 345.

18. See previous chapter; "Notes on natural history" (III).

19. JE, "Notes of a geological examination"; it is not clear if this was a contemporary survey or if it may have occurred earlier. If the latter, could his portly companion have been Amos Eaton (d. 1842)?

20. JE, "Some of our injurious Coleoptera," 1848.

21. An excellent account of copper mining in Michigan is: David J. Krause, *The Making of a Mining District: Keweenaw Peninsula Native Copper 1500-1870*. See also: Krause, "Testing a tradition / Douglass Houghton and the native copper of Lake Superior." Copper fever now and then hit pages of the *Argus*. The tragic drowning in stormy Lake Superior of Douglass Houghton (Anon., 3 Nov 1845), a popular native son, gave the copper region a touch of familiarity to Albany readers. An anonymous writer (*Argus*, 1 Aug 1846) had been to Mackinac as early as 1840; on 13 Aug, the *Argus* held the Michigan copper region "The (Mineral) Place to be!"

22. JE, *Outlines of the Geological Structure of Lake Superior Mineral Region*, 1846.

23. JE, *Outlines*, pp. 3-5. More details on Agate Point will be given shortly. Eights's reports were made to Gen. Gerrit V. Denniston, Albany. I can find little on him; his title came from his association with the New York State militia (see Albany Directory, 1830s), where he was listed as the governor's "Judge Advocate General."

24. JE, *Outlines*, pp. 5-6. For a contemporary description of Agate Harbor, see John R. St. John (fl. 1846), *A True Description of the Lake Superior Country; Its Rivers, Coasts, Bays, Harbours, Islands, and Commerce*, pp. 32-33: It consisted internally of two harbors, separated by a long narrow spit of land; both "as good harbours as can be wished, with clay bottom at five fathoms." It is about three miles long and half a mile wide. "Its name is derived from the Agates found there by early visitors, and which are yet found in great quantities." "About one mile back from the bay is a beautiful little Lake...called 'Shoon-e-aw' or Silver Lake, but has never been thoroughly explored for mineral or visited by many persons because covered by lease No. 18 belonging to the New-York and Lake Superior Mining Company, who are working on the east end of the peninsula of the Harbour, where there are as many veins as they are prepared at present to work." "Upon the reefs in the west part of the bay [that is, nearer Lake Superior], the Trout and White Fish are easily taken in great abundance with the spear and gil-net [!]."

25. JE, *Outlines*, p. 6; St. John, *True Description*, p. 27: Little Montreal River has a fall of 40 feet perpendicular and enters "a very good harbor from north and westerly weather...called Bay [Baye] Bris, or Rolling Pin Bay."

26. JE, *Outlines*, p. 6; St. John, *A True Description*, pp. 37; Boston Mining Co., *Trustees' Note*, Dr. Charles T. Jackson's Report (1845) — Charles Thomas Jackson (1805-1880) was a widely experienced geologist; the company was formed early in 1845, based on Lease No. 15, an area three miles square, near Agate Harbor; it had from ten to fifteen men engaged throughout the season; the largest piece of native copper so far found was so large that it was broken into two pieces for removal, the larger weighing 564 pounds; the Boston Mining Company claimed, p. 5, to have paid a cash dividend of five dollars per share 1 Nov 1845; the report of Jackson, who was in the employ of the Lake Superior Copper Company, is pp. 6-11; St. John, p. 37, seems to equate "the Lake Superior Mining Company" under the "better known" name of Boston Mining Company. So far as I know, the Boston Mining Company published no more reports.

27. JE, *Outlines*, p. 7; St. John, *A True Description*, pp. 42-43, characterizes the land as excellent, pure water abundant, fishes plentiful; Montreal River is well to the west of Keweenaw Point and has a fall of about 80 feet near Lake Superior. A few miles upstream, it passed through James Eights's claim No. 161, as shown on St. John's detailed map. Interestingly enough, Eights's claim adjoined but was not within his company's Location No. 22 — Eights did not show his claim on his map, although its area (along with others) is lined off.

28. JE, *Outlines*, pp. 9-10; St. John, *A True Description*, pp. 22, 22-24. St. John noted that the Chocolate River got its name from the color of its water. It is 146 miles west from St. Mary's. It is from 80 to 100 feet wide, and of good depth, although sands at the mouth prevented boats of any size from entering: "This river is the eastern boundary of, and from it west is the mineral region." According to St. John, the official name "Dead River" belied its liveliness (and danger) — no doubt the term "River of Death" used by Eights was more appropriate.

29. JE, *Outlines*, pp. 11-14. St. John, *A True Description*, pp. 23-24, described the area of Granite Point, including its potential for anchorages, in detail; he alluded to Lease 20, "belonging to the 'New-York and Lake Superior Mining Company'"; appropriately, he termed the sheltered bay on the north of Granite Point "Talcott Harbour." St. John (pp. 82-83) reported that the Dead River location (20) was worked by fifteen men and two women: "These are English and Irish. The overseer is a Cornish miner, who seems to understand his business. They have erected five log buildings, including a storehouse and blacksmith's shop, and a root house." Sebastian Visscher Talcott (b. 1812), son of George Talcott (1786-1862), was an Albany engineer, brigadier-general in the Civil War, and author of *Genealogical Notes* (see F. Munsell, *American Ancestry*, vol. III, p. 50).

30. JE, *Outlines*, pp. 15-16; St. John, *A True Description*, p. 28-29 — Copper Harbor was the new name of Fort Wilkins, on the north shore of Keweenaw Peninsula's easternmost point. It offered an extensive harbor but the

entrance was treacherous in some winds.

31. JE, *Outlines*, p. 20; St. John, *A True Description*, pp. 37-39, gives considerable space to Eagle River — which, "like many other streams of this country, is wonderfully magnified by the title of the river. This stream is about three rods wide, falling to within a short distance of the lake, affording in its mouth a safe place for small boats"; lease No. 2, at its mouth, was owned by the Boston Mining Company. Eights in no way, in his letter dated 11 October, exaggerated the hazards of travel on Lake Superior. Two days later, in a violent autumn snowstorm, young Dr. Douglass Houghton (1809-1845), Michigan State Geologist, drowned near Eagle River (*Argus*, Anon., 3 Nov 1845). See Helen Wallin, *Douglass Houghton / Michigan's First State Geologist / 1837-1845* (1970); works by D.J. Krause cited in note 21 have useful information on Houghton.

32. JE, *Outlines*, p. 21; it ends with a folding map, drawn on stone and lithographed by J.H. Hall, Albany, that shows claims of the company; for much more information on the total extent of claims, with numbers and claimants, as far as could be ascertained, see St. John, *A True Description*; his map 1 is the British Admiralty chart by Bayfield (it shows the newly established international boundary), which gives place names but not claims; this is followed by a highly detailed folding "Map of the Mineral Regions," showing the number and place of all locations; a list of grantees with the numbers of their locations is to be found pp. 101-ff.

33. David J. Krause (letter 18 Mar 1992) reported that the New York and Lake Superior Mining Company did not have much luck; perhaps the same applied to Eights. Most of the numerous "people who had their fingers in the Keweenaw pie during the copper rush...came out of it with nothing but lighter pockets to show for their efforts."

34. This shows Eights at his best in expository writing. I have been unable to find that a Pittsburg (or Pittsburgh) Mining Co. published a report in this period of time. Possibly this was what Krause, *The Making of a Mining District*, pp. 207-210, calls the Pittsburg and Boston Mining Co.

35. The *Argus*, Anon., 10 Jul 1847, devoted a good deal of space to the regents' efforts to both expand its holdings and find suitable space for curating and exhibiting material. While the Cabinet had officially been put under their care two years earlier, many specimens intended for the collection had been injured or lost. In regard to the Institute, see in its archives in McKinney Library, DE/563/II/7VV / #48, Anon., letter of 13 Jul 1848 from Library Committee of the Albany Young Men's Association to T.R. Beck, suggesting that the Institute Library might escape dissolution and be of greater use to the community if transferred to the Y.M.A. Library.

36. Joseph Henry Papers, Smithsonian Institution Archives, Record Unit 7001. I have not quoted the two final paragraphs of this sincerely devoted letter, since they pertain to DeWitt's family alone. I thank Marc Rothenberg for providing a photocopy so that an intelligent transcription of it can be presented.

37. Henry Papers, Record Unit 7001, Box 9. Abraham Eights Williams (1820-1896) was the son of Israel Williams and Rachel Eights (sister of Jonathan).

ALBANY IN THE EARLY 1850s ALBANY — FROM UPSET TO EQUILIBRIUM

If we believe faithful Richard V. DeWitt, the case of James Eights was sad indeed as the decade of the 1850s got underway. Just how Eights was enabled to pick up the pieces and precisely when it happened are joint mysteries. He was not listed in the Albany Directory in 1850, 1851, and 1852. He reappeared in 1853, as "Geologist and Draughtsman, 19 Commercial Building." How much work in either field he did that year is unknown but this is evidence that by then he had command of his own destiny. We can guess in part why he was not resident in Albany during the years 1854 through 1859: He was busy elsewhere.

Why he waited 20 years to bring his account of the new Antarctic crustacean, *Glyptonotus*, into the light of day can only be guessed. By early in 1850 (how much earlier, we do not know), he had finished a paper on Albany clays. With the Albany Institute in a quiescent phase, he sought a place of publication elsewhere. He seems to have thought Joseph Henry at the Smithsonian Institution a kind of last-ditch appeal for that paper. Whether he hoped for publication in Washington or merely wanted referral to a potential publisher is not clear. On 19 February 1850, Richard V. DeWitt wrote to Henry of his need for a reliable patent consultant in Washington, adding the note: "By the way Dr Eights asked me the other day had I heard from you — as neither he nor your Brother had learned the fate of the paper & specimens sent to you, — he had become anxious lest a miscarriage has taken place."¹

On 1 July 1850, DeWitt wrote to Henry again, this time entirely in regard to Eights, a note of urgency evident: "We are making an effort to get our unfortunate friend Eights off to some place or other, probably the Minesota Country, for if he is left here he will soon be in the poorhouse or worse place, for he seems to have given himself up to despair, at finding that he can get nothing to do. He reminded me the other day that he had not heard from you since he sent his box & essay on the Clays of this region — If anything can come of it, to his advantage let it be now, and send whatever if anything it be to me or anybody but him."²

DeWitt's next letter to Henry explained more clearly the despair into which Eights had fallen:

"Albany Aug 19 1850

"Dear Sir,

"I rec^d on Saturday evening (17th) your letter enclosing \$50. for Dr. James Eights, which shall be delivered to him & his receipt sent you. It may be some time before I can do this, as I will now explain to you.

"The Doct^r has been relapsing into his old ways, so that after repeated frolicks at odd times, I am convinced his further stay in this city will be certain ruin to him, & he will end his days in the poor house or penitentiary as a vagrant. I have been obliged to exclude him from my office. Two or three of us are now endeavouring to raise the means of funding him, where he desires to go, to Minesota Territory — & I design to reserve your money — to be paid to him at

Chicago — as a fund to start upon when in new regions. I shall therefore not let him know that I have such a fund in my hand for him, until he reaches that point for if I were to do it he would demand & I could not withhold it, and he would soon dissipate it here.

"I shall write after he is gone to let you know that he is off — If he should change his line of conduct when there he may be of some service to your Institution as a correspondent —

"Yours truly,
R.V. DeWitt

Dr Joseph Henry."³

From DeWitt, finally: 7 September 1850: "I enclose you Dr. Eights Receipt for the \$50, & I believe it is all that now stands between him and the *Poor House* — / I am pressing & mean to press the family to do something to get him to California or to Minesota, it is all that will save him from the worst of fates — / If he could get employment, under & in company with some person he would respect, & be paid so as to permit but little *money* to find its way into his pockets he might be saved — Here he has run out — / Do you mean to publish his memoir?"⁴

It is unfortunate that Eights had not other friends (with acquaintances in high places!) whose perceptive and thoughtful comments might have left us an inkling of what happened next.

It may be that "what happened next" was that the Albany Institute began to show vital signs. Could that have inspired Eights with new life? As has been noted, the first meeting of the Institute since 1843 took place 6 Mar 1851. Five members of the First Department, eleven of the Second Department, and six of the Third Department, met.⁵

The reorganizational meeting of Albany Institute was pronounced good. "The attempt...was eminently successful," said the *Argus*. "The meeting was well attended, and some thirty new members were proposed and elected. Another meeting is to be held, *this evening*, at their rooms, in the Albany Academy, at 8 o'clock. The citizens should feel much interested in the success of this institution." At the meeting, James Dwight Dana, New Haven, was

elected a Corresponding Member, Louis Agassiz was nominated an Honorary Member.⁶

What James Eights was doing at this time is not known. Had he mended his ways? Had his friend DeWitt simply given up? We do know that at a meeting of the Albany Institute 5 June 1851, Ebenezer Emmons, Sr., was present. It is possible that in the presence of Emmons, we can trace the beginning of the recovery of James Eights.

Ebenezer Emmons and James Hall were, by this time, locked in a battle over what Emmons perceived as truth and, whatever his protestations, Hall viewed as turf. When turf could be defended in the public arena, where media freaks like Louis Agassiz were given maximum exposure, it is hardly surprising that turf won. Maybe, in it, aside from the tragedy that it was for Emmons, Eights, as a friend of his, had found it difficult to survive in Albany.⁷

Where Eights fitted in is not clear. Perhaps the election of Dana a Corresponding Member and nomination (and election) of Agassiz an Honorary Member were not perceived by him as good omens. Maybe the Albany Institute merely needed to gain momentum. Perhaps part of the momentum for Institute growth came from the sixth annual meeting of the American Association for the Advancement of Science in Albany in 1851 (another sign that James Hall's star was rising). The meeting in Albany had been announced the previous autumn and a local committee named. On 19 June 1851, R.V. DeWitt moved that the "Rooms, Library and Collections of the Institute be offered to the American Association for the Advancement of Science, during its coming sessions in this city"; on 20 July, the curators of the Second Department were notified to make room for the AAAS. In the entire episode, there is no hint that Eights was at hand or took part in any way.⁸

The next we hear that immediately concerns us is that at the meeting of the Albany Institute 5 February 1852, "Doct. Eights presented a description of a specimen of glyptonotus, accompanied by drawings." While this can be interpreted as a personal presentation, I am not sure it was. There was no mention of a vote of thanks, although in the case of Doctor (Professor)

Spencer of Geneva College, James Hall did move the “thanks of the Society” for reading a paper on “Heat or Vitality.”

On 4 March 1852, Prof. James Hall read a paper “on fossils and particularly indications of coal,” and “Mr. Brown [A. Heyer Brown, a curator, Second Department] presented a paper entitled ‘Observations on the Geological features of the post tertiary formation of the city of Albany & its vicinity’ by James Eights” — “which on motion was read by its title simply for the present.” It was not until 18 March that ““Prof. [George H.] Cook read the paper presented at the last meeting by James Eights, entitled ‘Observations on the geological features of the post-tertiary formation of the City of Albany and its vicinity.’” Cook was Librarian. It would thus appear that Eights was not present at either of these meetings. At the conclusion of the reading, it “was moved and carried that the thanks of the Society be presented to Mr Eights for his Elaborate and instructive paper.”⁹

With two major Eights papers in hand, the Institute moved to finish printing and publication of its volume 2, begun so auspiciously by its printing of Eights’s paper on *Brougniartia* and the notes on Antarctic natural history in 1833. At the meeting on 1 June 1852, President T. Romeyn Beck reported that the Institute owed Mr. Deith (?) \$257.50 for preparing a catalogue of the library, of which \$72.50 was still owing; on the motion of DeWitt, this was ordered paid. “On motion it was resolved that the two papers heretofore presented by Dr. Eights and the article on De Lancey [?] read by Dr O’Callaghan form a part of the 2d volume of the Transactions and that the same be printed and the volume prepared for distribution, provided the printing & engraving of the plates accompanying Dr Eights [!] paper on the post tertiary formation &c. can be procured to be executed gratuitously, it having been intimated that Mr Van Benthuyssen had liberally offered to do the printing and Mr [John E.] Gavit having offered to do the engraving without charge to the Institute.

“Mr [Joel] Munsell proposed to print the Catalogue [of the library], the cost of which he estimated at \$75 and receive payment therefor when sufficient funds for that purpose could be

appropriated by the Institute, and he was therefore authorised to print the same.”¹⁰

Thus, the revived Institute owed much to the genius of James Eights. What his reactions were, we do not know. His paper on *Glyptonotus antarctica* has been transcribed in the chapter on zoological results of the southern and Antarctic exploration. It brought considerable renown to the Institute. His account of recent clays in the vicinity of Albany is transcribed below.¹¹

Eights’s account of some of Albany’s most striking geology will be of interest to the general naturalist and, for that reason, is reproduced here. Little effort will be made to examine the article critically. Every fan of Pine Bush geology will be competent to compare it with relevant accounts in Don Rittner’s *Pine Bush*.¹²

ON THE GEOLOGICAL FEATURES OF THE POST-TERTIARY FORMATION OF THE CITY OF ALBANY, AND ITS VICINITY

The Helderberg mountains occupy a position comprising about one-third part of the entire county of Albany. They lie in a southwesterly direction from the city, twelve miles distant; and may be seen, on a clear day, to form a beautiful feature in the landscape scenery from any of the public highways. The other portions of the county present the appearance of a uniform level plain of sand, almost completely covered over by a dense growth of pine, with oak, and other deciduous trees; but a closer inspection, particularly along the courses of the Hudson and Mohawk rivers, and most of the minor streams that discharge their waters into these channels, will at once exhibit the entire base of the country to be composed of Hudson river sandstones and shales. Over this an ancient drift or boulder system sometimes prevails, succeeded by a thick deposit of blue and drab-colored clays; the latter embracing all over among its different strata, innumerable beds of sand and gravel, the whole mass belonging evidently to a more recent, or post-tertiary period. Above this is spread out a continuous stratum of yellow ferruginous sand, which forms the surface of the

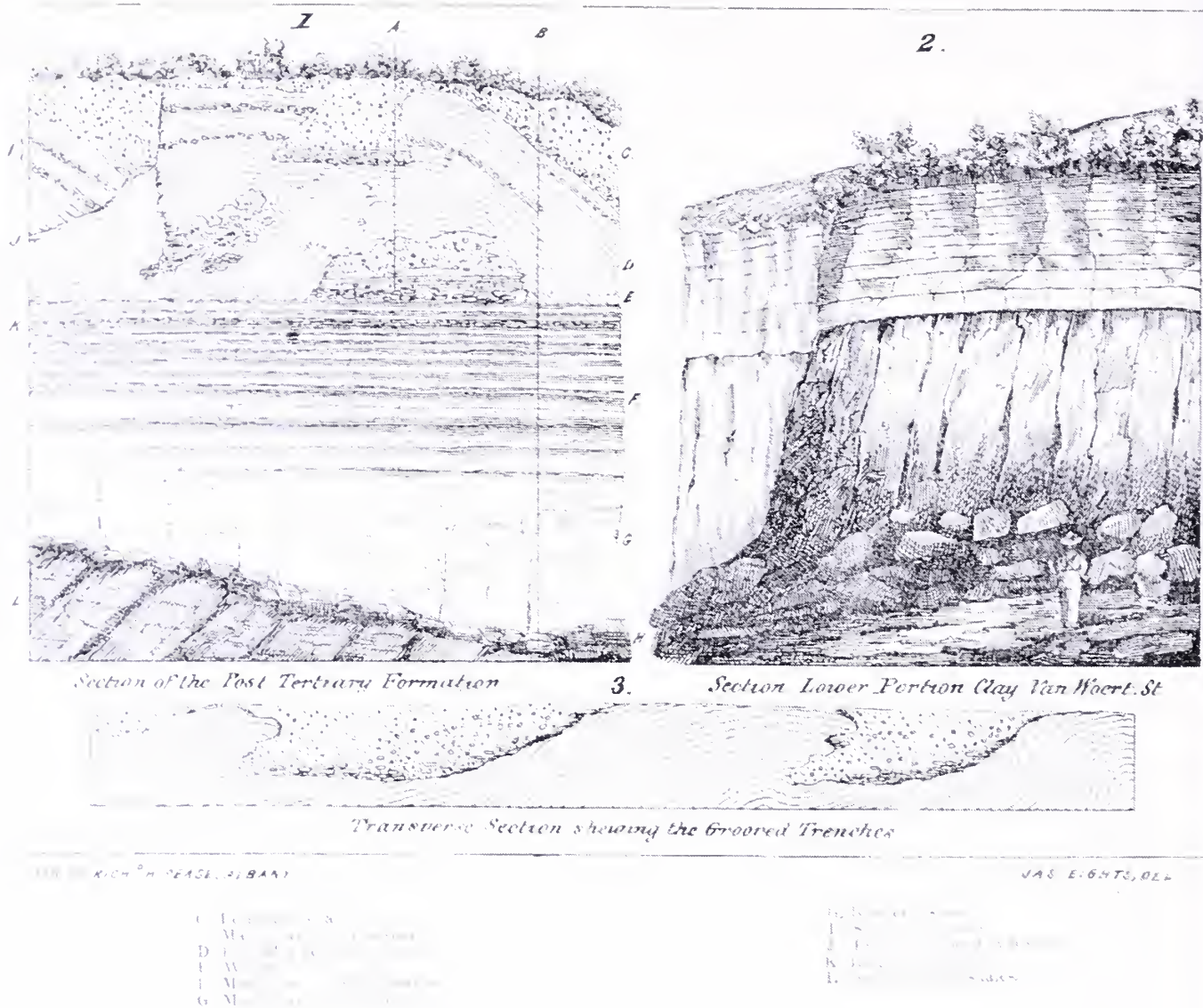


Figure 17.1. Sketches by James Eights (original unknown) of rock strata near Albany. *Albany Institute Transactions*, volume 2, page 335, 1852.

plain; and however level may appear to be the surface of this plain from a distant point of view, a nearer examination will disclose frequent hills of sand and depressions of morass, the former drifted up by the winds at a period of time long before vegetation had scattered a single seed upon the soil.

The general elevation of the surface of this plain has been ascertained, by actual measurement, to be about two hundred and sixty feet above the tidal wave.

The clays which constitute this formation are

about one hundred feet in thickness, and are for the most part disposed in a horizontal position. Its lower portion, where it rests directly upon the Hudson river shales and sandstones, is of a firmly compact nature, owing no doubt to the heavy pressure of the superincumbent mass; but, as we ascend in the series, its stratification begins to develop itself, at first at distant intervals, but, on approaching the surface, these intervals are seen gradually to diminish in thickness, until they terminate in layers so exceedingly fine as scarcely to be discernible.

Whenever this stratification first makes its appearance, the separating material is a remarkably fine-grained pulverulent sand of a light silvery tinge, closely approximating to white: and this is continuous throughout the remaining portions of the formation. It is chiefly among some of these seams of sand that the indurated calcareous concretions, so frequently met with in this vicinity, originally derived their existence. These seams of sand, as they approach the surface of the soil, are sometimes seen to expand to such a manner as occasionally to admit a stratum of a fine-grained yellowish sandy clay, from two to four or more feet in thickness, the lower parts of which not unfrequently become interstratified with fine layers of the blue variety beneath, but most generally it is isolated and compact in its texture.

The general color of these clays is of a deep blue or violet, closely approaching a neutral tint; but as we ascend in the series, it is seen by degrees to lose its fine uniformity in shade, and at length to assume a more variegated aspect. From the deep stone-blue beneath, this entire mass, in its progress upward, exhibits among its numerous strata almost all the other hues in nature, and in oft repeated alternations; not blending imperceptibly one into the other, as is so frequently seen, but so arranged in distinct bands as to present an appearance not unlike the striped ribands on a lady's dress.

This display of colors retains its beautiful appearance until we approach the surface of the clay, where, from long exposure to the influences of sunlight and the weather, its whole upper portion, whenever revealed to the eye, becomes one uniform tint of yellowish drab.

This upper division, or *drab-colored variety* of the marly clay, is usually separated from the horizontal, variously colored and dark-stained mass beneath, by a single imbedded deposit of fine-grained, deeply tinged yellow sand, amounting in many places to some considerable degree of thickness. This drab-colored portion of the clay constitutes about one-third of the entire formation, and it is through its numerous layers alone that the disturbing agencies appear to have exerted their most powerful energies. The heavy primary boulders and other detrital materials from the northern section of the State,

during the violent agitation of the waters which drained and left bare so large an extent of our tillable lands, have grooved out deep and parallel trenches, running in a direction nearly north and south, and, after disrupting the strata and giving origin to those many faults and slides which everywhere prevail, may now be seen piled up in the greatest profusion all along the base of the heavy lime and sandstone cliffs which form the northern termination of the Helderberg mountains.

This disrupting agency has, in many instances, forced its way between the strata of this variety of clay at various elevations; sometimes raising the overlying mass so as to cause it not unfrequently to assume the regularly arch-like form, and leaving the intervening spaces completely filled with fine-grained gravel or beds of sand; at other times it has fairly inverted the strata, and thrown them about in every variety of confusion, producing at the same time those singularly twisted or tangled appearances which so often perplex the geologist in his endeavors to trace them clearly out. Immediately beneath this disturbed portion of the deposit, the strata are again seen to resume their usually horizontal position.

In several situations, and always in connection with this superincumbent mass, are to be observed decided evidences that some partial or local currents of water have drifted the fragments of these broke-up strata, and quietly deposited them over the surface of the yellow ferruginous or overlying sands. These fragments have their angles but slightly abraded, and consequently could not have been brought to their present position from any great distance; and most commonly they can easily be traced to the parent cliff, almost in the immediate vicinity of their occurrence.

When this disrupted mass of clay comes in direct contact with the subordinate strata upon which it rests, it generally presents the appearance of being placed in an unconformable position by the disturbing agencies, and would, from its absence of color and deranged condition, most readily deceive the eye of an inexperienced observer, and induce him to believe that it had been the result of a distinct and more recent deposition; but a closer inspection, however, will

very soon convince him that they are identically of the same age.

The succeeding *portion* of this formation occupies a central position, amounting to about a third part of its entire thickness. It is composed of innumerable strata of a remarkably fine-grained, unctuous, marly clay, separated throughout its whole extent by numerous thin seams of a silvery white pulverulent sand. These strata are, with rare exceptions, arranged in a horizontal position, and the numerous layers by which they are constructed are each deeply tinged with red, yellow, and blue, including all the various modifications of tint, presenting to a spectator a richly striped and exceedingly beautiful appearance when freshly exposed to the open light of day. These colors are usually repeated in the strata throughout its entire extent, but they gradually diminish in thickness as they proceed upward. It is in some of the separating seams of this division that the leaves and stems of plants have been discovered.

The *inferior portion* of this deposition of clay, where it closely approximates to the supporting indurated rocks below, when freshly exposed to view, assumes the appearance of a compact cohesive mass, the particles of which it is constructed being of an exceedingly fine nature; but when for a few days it becomes subject to the direct influences of the weather, it most generally exhibits a tendency to separate vertically into a rudely columnar structure, much resembling in general aspect many of the granites of our Eastern States.

This formation of clay rests in an unconformable position upon the Hudson river sandstones and shales beneath; but in some instances a more ancient drift or boulder system intervenes, the currents of which swept in a southerly direction over the principle portion of the State of New-York, producing those numerous scratches which are so distinctly visible upon the surfaces of most of its rocks, and giving evidence that a long period of time must have necessarily elapsed of tranquil waters reposing over this region of country, in order to leave so uniform a deposition of clay, amounting to about one hundred feet in thickness. It was after the completion of this deposit, that the violent action took place

which tore up and dislocated the upper portion of this formation.

The numerous beds of *gravel* and *brown sand* which are inclosed within this upper or drab-colored variety of the marly clay, — and which, no doubt, were the agents employed in the opening and upturning of its strata, — are of a different nature from the overlying formation of yellow ferruginous sand. The materials which characterize these deposits are for the most part of a greenish brown color, and appear all to have been derived from the primary ranges of the north; not a single fragment of the extensive lime and sandstone formations of the Helderberg mountains, twelve miles to the south, has ever yet been detected among them. The sands are almost completely composed of rounded particles of transparent quartz, gneiss, hypersthene, hornblende, and augite, disseminated in about equal proportions; the latter named minerals giving to the entire mass that greenish-brown color that it invariably presents whenever it becomes exposed to the sight, and which readily distinguishes it from the overlying ferruginous sands. Their mineral characters and abraded angles also denote their transportation by water from some far distant region. It is rarely indeed that any other mineral ingredients can be discovered among their particles, if we except some occasional fragments of flesh-colored feldspar and oxides of iron.

Whenever any of these imbedded materials are freely exposed to view by the numerous diggings, and in the ravines along the shores of the various streams that discharge their waters into those of the Hudson and Mohawk rivers, they invariably present an arrangement of large and small particles in a series of waved lines or angular markings, as if disturbed or deposited from gentle moving or by violently agitated waters. This in all probability was the case when the drainage took place, and the plain became permanently dry. These peculiar characters most strikingly resemble in appearance those of a no doubt similar nature, which are most generally to be met with on the exposed edges of many of the more ancient sandstones: a fact strongly impressing on our minds the conviction that nature is governed at the present day by the

same laws by which she operated in times far remote.

In many places it would appear, that after this brown arenaceous matter had been permanently arranged through the clay in the manner we now behold it, slight and limited depositions of an exceedingly fine-grained, light yellowish colored sand took place, which are at present to be seen in various situations, protruding as it were from the roofs of these excavations, and forming a singularly distinct contrast to the dark stained material into which they are enclosed. From the circumstance that these apparently isolated masses of sand never exhibit those undulating lines and angles so characteristic of the other and associate deposits of the kind, I should form the conclusion that they had derived their origin from the surface waters, slowly and gradually percolated through the numerous thin seams or shrinkage fissures in the overlying and disrupted clays; for I can conceive of no other or more simple process to account for their present appearances.

Sometimes the rounded pebbles which constitute the gravel, and which are at all times to be found in connection with these imbedded brown sands, are cemented firmly together by a copious deposit of carbonate of lime, to such a degree as to form extensive beds of calcareous conglomerate, or pudding-stone, the lime being derived from the percolating waters continuing it in solution; but this only occurs when the broken up strata of drab-colored clay are either in their immediate vicinity, or directly above. In other instances, the cementing ingredient is the sulphuret of iron, which then renders the united mass so exceedingly hard as to destroy the tools of the workmen employed in its excavation.

The marly clays of this formation, with their imbedded contents, are sometimes subject to frequent and extensive slides. They are of common occurrence all over the sloping sides of the numerous and deeply cleft ravines which open from the surface of the plain, down to the shores of the different streams. To an individual looking from an eminence across one of these ravines to the hill-side beyond, it will most generally appear to be composed almost entirely of a succession of irregularly formed terraces, rising one

above the other, until their termination at the surface of the plain. These slides are of various dimensions, some of them extending to a considerable magnitude; and when their edges become exposed, from excavations for the purpose of obtaining the brown sand, or the clays in which it is embraced, the facts there developed might easily deceive the eye of a spectator, by disclosing to his view the appearances of a repetition of similar deposits widely separated from each other in position, whereas they are in reality a part and parcel of the same stratification.

Most of these slides exhibit evidences of a very slow and gradual movement of the mass in their progress onward. In many situations, the beds of sand and gravel which they contain, and the various strata of clay which compose their structure, however distorted and disarranged they may appear, disclose no further indications of any disturbance, either by fracture or otherwise, than those produced at the time of their original deposition: they perfectly correspond in every respect with the same formation in its natural position many feet above. In other instances, where the movements have evidently been more rapid and irregular in their action, the different materials of which they were constructed appear to have been fractured and tumbled about into the utmost degree of confusion. In several other situations, where excavations for economical applications have been made along the sloping sides of these ravines, the peculiar action of the slides is well exhibited. In frequent instances, most generally after heavy torrents of rain, the progress of railroad cars has been seriously impeded by prodigious quantities of these materials having been suddenly thrown over the track, so as to require the constant employment of a large number of workmen in their removal. The only method to remedy such an inconvenience is, if practicable, to construct the embankment from the edge of the road at the same slope that nature always adopts in her arrangement of particles of earth on the hill-sides, which is at an angle something less than forty-five degrees with the horizon: it then remains in a quiet state until the surface is completely covered over by shrubs and herbaceous plants, which are perfectly competent, by the ramifying entanglement of their

rootlets, to secure permanently the banks from all further encroachments. Whenever the angle is of any greater degree, these slides must invariably take place.

The *calcareous concretions* embraced in the clays of this formation present a very singular feature in their construction. They are exceedingly common among some of its strata; and from the peculiar variability of their forms, it becomes very difficult to conceive any method by which to communicate a definite idea of their remarkable appearances, other than by a reference to the specimens themselves. They are always limited to the upper portion of the deposit, or that part most commonly selected for the manufacturing of brick. From the size, color, and their geological position amid the clays, they will easily admit of a separation into two distinct varieties: the first, or smaller of these, are most generally of a light yellowish color, about an inch or an inch and a half in their diameters, and are exclusively confined to the divisional seams of sand in the upper or disrupted portion of the series. The second and larger variety, as far as observation has hitherto extended, appears to be restricted to a single stratum of the middle, or variegated portion of the clays near to its upper termination, and situated about four feet from its junction with the overlying or disturbed member of the deposit: they are for the most part about three or four inches in diameter, with a length frequently of more than a yard, and of a deep stone-blue color. Both of these varieties sometimes present the same peculiarities of form, but they differ considerably in their chemical analysis.

By an individual unacquainted with the manner in which these concretions have been produced, particularly those that assume the rounded form, so great is their resemblances, they might very easily be mistaken for water-worn fragments of some firmly indurated rock; and had the material of which they have been constructed been somewhat more copious, there can be but little doubt but that a solid stratum of silicious limestone would have been the result, occupying a position in conformity with the strata of this heavy mass of ductile clay.

These clay-stones, as they are most common-

ly called, or calcareous concretions, have frequently been the cause of some considerable speculation among geologists, in endeavoring to account for their production. The manner in which they have been formed is distinctly perceptible everywhere, among the various and extensive diggings which have thrown them open to the light of day. The delicate fibres of the roots of the different trees of the forest that at one time completely covered the surface of the soil, have, in innumerable instances, penetrated to a very considerable distance beneath. It was along these roots that the moisture from the surface highly charged with carbonic acid gas, readily found its way, collecting the lime and other necessary ingredients in its descent, until its arrival at one of these seams of sand; here a deposition commenced, and the particles gradually arranged themselves in a concretionary form around a nucleus of ligneous fibre.

Whenever these concretions have been examined in a perfect state, this nucleus, or remnants of it, has invariably been found, exhibiting no other change in its appearance than that of a brownish stain given to it by the oxide of iron. Sometimes two or more of them may be seen united together; at others, where the deposition seems to have been far more copious, the liquid mass appears to have spread out to some considerable extent, giving origin to those stony plates of the same nature which are always to be found associated with them. It is also not an unusual circumstance for many of them to be marked with circular depressions, when, after a short exposure to the atmospheric influences, they readily disunite, the central portion falling out, carrying with it the woody nucleus that they contained, and leaving the concretions in that regular ring-like form that they so commonly assume. In some instances, while undergoing the necessary process of induration, the particles appear to have shrunk from the centre to the circumference, causing those radiating fissures which afterwards became filled by segregation with calcareous spar; in this case, these concretions become perfect septaria.

When these carbonized waters flow through the pulverulent sands which separate the layers of clay, and free from the influence of roots of

neighboring plants, they continue for several feet in length to form those indurated plates of concretion that are so frequently to be met with, strewn all over the surface of the ground, far beneath the level of their original deposition.

The lower, or *amorphous portion* of this formation, not being divided into distinct stratification, nor ever having been penetrated by the roots of plants, it consequently would rarely if ever contain these concretionary forms, which seems to be the case; and from the preceding description it will be seen that although perfectly embraced in the layers of clay to some considerable depth, they may with strict propriety be considered as belonging to a more recent period, having been constructed long after the deposition had become complete, and vegetation had for some time flourished in the soil upon its surface.

Minerals, in a distinct form, are of rare occurrence in this formation. Besides sulphuret of iron in nodular masses with central radiations, — which are not unfrequent, — some large and beautiful crystals of selenite, or sulphate of lime arranged in a stellular manner, are sometimes found. This latter mineral no doubt derives its origin from the decomposition of iron; the sulphuric acid produced, readily uniting with the lime contained in the clay, would speedily accomplish this effect. In some situations where magnesia prevails as an ingredient, epsom salts in acicular crystals has been the result, and was produced in all probability by the same chemical agency.

In one of those thin seams of fine sand that separate the strata of clay, about fifteen feet beneath the surface of the soil, is to be found the remains of a vegetable much resembling in appearance the leaves and stems of the *Mitchella repens*, which now thrives most luxuriantly all over the surface of the pine plains in this vicinity. These leaves have undergone but a slight degree of change in their nature, still retaining all the flexibility of the more recent plant. This is the only instance of an apparent fossil remain having been found connected with this formation in the neighborhood of our city; but Professor Emmons has procured, from what he considers as equivalent to its upper layers, along the shores of Lake Champlain and the St. Lawrence

river, many feet above the reach of the tidal wave, the fossil remains of marine shells that still have an existence along the shores in the neighboring seas, together with some few that belong to the waters of a more boreal or arctic region. The only ready method to account for the paucity of fossils in this deposit, extensive as it appears in this section of the country, is, to consider it as having derived its origin from the waves of a deep inland estuary or arm of the sea, with numerous streams of fresh water continually discharging themselves into its basin; by which means the water would soon become too brackish for animals from the land, and much too fresh for those belonging to the sea.

Fibrous rootlets of plants, still retaining all the characters of a more recent vegetation, are to be observed in almost every stratum of the clay, to the depth of some fifteen or more feet from the surface, ramifying in every direction over the vertical faces of the cliffs. In many situations they have often been mistaken for ancient fossil remains, but a slight inspection will most readily disclose their recent origin. They have, in many instances, been traced to the stems of still surviving trees.

The clays of this formation have, for a great length of time, been extensively made use of for the manufacturing of brick. With now and then a rare exception, the entire city of Albany has been erected from the material upon which it stands. In many places, this clay contains sand sufficient to constitute an excellent mortar for the purpose; but most generally it is necessary, particularly in its lowest division, to give additional sand to its composition. It is likewise capable of affording a fine material for tile making; but the demand for such an article has been so limited, that no individual, until very recently, has considered it of sufficient consequence to embark in the enterprise. With a little more care in the tempering, I should think that this material might easily be moulded into elegant ornaments for decorating the door ways, windows, and even the entire fronts of dwellings, so as to give to the structure composed of it a very chaste and highly beautiful appearance, and that too at a far more reasonable rate than is now employed

for the sandstones and marbles at present in such general use.

Quite recently, an attempt has been made to manufacture fine glass from these clays; but by a reference to the table of analysis, it will be seen that some of the most important ingredients, if there at all, are not in sufficient quantity to produce any thing more than a common variety of coarse bottle glass, of little or no consideration whatever. In conjunction with some of the metallic oxides, however, it has produced some very beautiful variegated door knobs; but the expense attending their manufacture has far exceeded the idea of any thing profitable. It is occasionally made use of for coarse pottery, and many of the poorer class of our citizens make use of it, with a solution of glue, for washing the walls of their dwellings.

From the central portion of this formation, and from amid the various colored strata, is obtained the material so much in value at the earthen-ware factories in our neighboring States, for the purpose of glazing their numerous productions; they pay for it at the rate of one dollar the barrel, and it is most admirably adapted to the use. All that is necessary, is to dip the article to be glazed into a solution of this clay, formed with water to the consistency of cream; the lime constituting one of the ingredients, readily performing the action of a flux to the aluminous portion; and when the article is subjected to the heat required, it produces all the effects that become necessary to accomplish the object.

This blue clay, in a moist state, is a most admirable article for the preservation of the seeds and roots of plants, particularly during long journeys by land and distant sea voyages. All that is necessary, is to cut it into thin slices, and deposit the seeds and roots between them, at the same time packing the whole mass firmly together. In this way, these vegetable productions will retain their vitality for a number of years, in consequence of the exclusion of air, and the retention of a sufficiency of moisture for their preservation.

The finest portions of the imbedded brown sands and gravel are much employed, when united with lime, in the composition of mortars and other plasterings, and they are also used for

moulding purposes in furnaces; while the boulders and other angular masses, are broken up for the construction of roads.

The calcareous concretions have not, to my knowledge, been appropriated to any practicable purpose; but it has been suggested, from their chemical composition, that they might be usefully employed as a delicate water cement, when properly prepared.

Over this heavy formation of marly clay, and likewise constituting the surface of the extensive and elevated plain which forms so conspicuous a feature in the scenery between the city of Albany and the Mohawk valley, is spread out a thick deposit of *yellow ferruginous sand*. It leaves, however, in many places, denuded portions of the clay protruding far above the soil; and also, fills up those deep grooved trenches, which have been torn out by the rushing waters loaded with detrital matter from the north, in such a manner that it can only be seen to advantage along the deep cuttings, and in the banks of the numerous streams that discharge their waters into those of the principal rivers.

This yellow sand is chiefly composed of silicious particles having an external coating of oxide of iron, which gives to it that deep ochreous appearance which it everywhere presents, when not exposed to the direct influences of atmospheric action; small fragments of magnetic iron in the form of sand, with feldspar and mica, are commonly found disseminated through it, and more rarely garnets and pyroxene.

After heavy showers of rain, the surfaces of roads running through this plain are literally strewn with small concretions of this brown oxide of iron, these, upon being washed into the low marshy depressions which are every where abundant, unite themselves together by the tendency they have to concrete, and give origin to those large quantities of bog ore which have been hitherto proved so great a source of profit to the possessors of the land. In this way, the formation of this ore may be considered as of daily continuance, and consequently on the increase. A few years since, this iron was shipped in large quantities to the city of Philadelphia for stove castings, and for the purpose its quality most admirably adapts it.

Beds of *shell marl*, either covered or surrounded by margins of peat, are not unfrequently to be met with in the marshy depressions of this plain; both of which substances, when judiciously used as manures, have proved of essential service to some of the lands in the vicinity; but at other times they have been the source of some considerable evil, merely in consequence of the absence of a little chemical knowledge of the nature of the soils upon which they were improperly introduced.

The rains that descend and percolate these yellow sands, are, in many instances, immediately thrown off by the sloping surfaces of the impervious clays beneath, and again make their appearance in the form of *copious springs* among the various depressions scattered over the surface of the plain. From these springs, the numerous minor streams that ramify the country derive their origin. But many of these waters find their way into basins or reservoirs at the bottom of the torn out trenches and disrupted portions of the clay, from whence our farmers most generally obtain their supplies; and they consider themselves extremely fortunate when, in digging their wells, they at the first attempt succeed in reaching one of these repositories. In these researches for water, they are almost guided by chance, and oft times wonder that their labors are attended with such ill success. The accompanying diagram is taken from an actual section at one of the many excavations made in the neighborhood of our city, and will in a great measure aid in illustrating the theory of springs, and readily explain the cause of failure and success in these undertakings for water.

An individual boring for water at A, would be sure of obtaining it on passing through the yellow sand, and approaching the impervious floor of clay; whereas at B, a few yards distant, he would find none whatever, because the rains which percolate the sand at this place, flow off immediately on reaching the sloping surface of the clay. Now should he not be satisfied with the quantity or quality of the water procured at A, and resume his labors through the impervious floor, he would, in all probability, on penetrating the imbedded sands, lose that which he possessed; but on proceeding still further into this mass, he will in a short time be enabled to find it

in the greatest profusion; whilst at B, he might proceed through the entire formation, without discovering the smallest measure of it. It is from this peculiarity of the structure, that the borings for water on the 'Pine plains' are so uncertain, and of such a mysterious nature to our farmers, and which renders them so liable to the imposition of swindlers.

It would seem natural to suppose that the larger the size of the disrupting boulders drifting over the surface of this plain, the nearer they would be found deposited to the parent rock from whence they derived an origin; and the smaller the particles, the further they would be transported by the action of the moving waters. This law is unquestionably correct over an extended surface of level country, where the water had a comparatively quiet flow; but in this particular instance, it would appear to require some degree of modification, for the more numerous and larger boulders, after having torn up and dislocated the upper portion of the clays, in their passage along the surface, may now be seen in prodigious numbers, and of the greatest magnitude, lying up against the elevated range of mountains to the south, whilst rare indeed is the circumstance to find a solitary fragment of any considerable size any where along the intervening space.

The various facts detailed in this communication, when attentively considered, would appear to favor the hypothesis advanced some years since, that by some powerful convulsion of nature, the barrier was burst asunder which pent up and confined the waters of this inland estuary or arm of the sea, and caused an almost instantaneous drainage of the land. Such being the case, a violent rush or current would be the result, sufficiently powerful to sweep along at a rapid rate, even the largest boulders in question, and by that means easily to disrupture the surface of the clay, and produce all the effects that we at present behold. But still, an adequate supply of water seems to have remained, in order to evenly disseminate the yellow sands over the irregular and broken up surface long ere the land had become permanently dry.

The following results of *analysis* have been carefully obtained, expressly for this communication, by Dr. James H. Salisbury, of this city.

[See Table, his page 352.]

"This analysis of the *small yellow concretions*, from the upper portion of the clays, was made in the State Laboratory, under the direction of Professor Emmons.

Water	6.28
Organic matter	1.70
Silica	30.88
Free alumina and per oxide of iron	9.42
Carbonate of lime	58.98
Magnesia	0.22
Total	99.42 ¹³

FREE LANCE NATURALIST

It seems best to put here all general natural history articles written by James Eights in the 1850s. There can be no doubt that income from such writing was his bread and butter. It also appears that when work took him away, articles stopped abruptly. There were three articles for the *Cultivator* in 1852 and two more in 1853. The new weekly *Country Gentleman* (the two papers were associated and both were Albany-based) began to share his *Cultivator* articles, then they appeared in the former alone. Thirty-eight articles appeared in the *Country Gentleman* in 1853 — some reprints at least in part, some pot-boilers of general interest, some not based upon personal experience.

What he was doing is not clear, but Eights was in the eastern Adirondacks (he spells it both with and without the final 'k') in November 1851. These mountains, he wrote, "to the lovers of the picturesque, afford some of the most sublimely wild scenery that our country can anywhere present to the eye." Yet (perhaps a hint that he was acting as geologist for mining interests), he felt that "the most interesting feature of these mountains is, the many and immense size of the magnetic iron ore beds, which almost everywhere disclose themselves to the sight, along the face of the cliffs which form the sides of these vallies. These beds of ore are of such magnitude, as to prove almost inexhaustible...they will be found capable of fur-

nishing our country, for ages yet to come, with any quantity of the finest iron and steel." He described one of the few iron ore beds that had yet been examined in detail, the "Sandford bed," and expounded on chemical and physical constitution of rocks to be found there. There are detailed accounts of serpentine, hypersthene, feldspar, labradorite, kaolin, phosphate of lime, iron pyrites, and graphite (black lead).¹⁴

Two papers on entomology complete his initial year's experience with the *Cultivator*. In the first, on "The onion fly — *Anthomyia ceparum*," he alludes to a visit to Essex County, in the valley of the Au Sable River (probably his Adirondack trip of the year before). He found the onion crop nearly destroyed by the maggot of a fly that had proved very difficult to control. He thought ignorance of the animal's life history so nearly complete that it would require "some intelligent and interested individual, residing on the spot" to trace "them through their various stages of existence to the perfect fly." Treating seeds with deleterious substances (he suggested brine) might prove helpful, if the animal passes the winter state there. He thought white onions a preferred food (a hint that one might choose a resistant variety). Otherwise, suggestions for control were primitive: Charcoal seemed to deter them (the adults?) but should be thrown over only a part of the plot — one part being left with plants to which the adults will flock and lay their eggs; these plants are then "pulled up and consumed with fire."

The other paper concerned the "Red-legged locust," which, "in the present season" (he wrote 12 October), had been uncommonly numerous in some of the northern counties of our state. Whether from experience or not, he alleged that they had "sometimes appeared in such multitudes, that the light of the sun could but at intervals be seen, from such positions on the earth over which they pursued their flight, and when they descended upon a field, left scarcely a green thing visible." He was told that after eating all verdure, "they unhesitating lit upon the backs of the sheep in the patures, and commenced devouring the wool with as much apparent relish as if it had been, what we should have supposed, their more natural food.

On many occasions, we witnessed them basking in the sunshine, on the denuded surfaces of the rocks, to such a degree as fairly to obscure them from the eye; and many of the larger streams have for some considerable distances been entirely covered by their floating carcasses, tainting the atmosphere with the odors arising from their decomposition, they having been drowned in endeavoring to cross from shore to shore." His suggestions for control were few and circumstantial. You might mow grass early, thus get a crop, even as you starved the young insects before they became winged. Four individuals might maneuver a large cloth in such a way as to take immense numbers of insects: which "are to be thrown into boiling water, and fed either to the poultry or given to the pigs." Young turkeys could also be pastured profitably in infested fields.¹⁵

The year 1853 began with two articles in the *Cultivator* but his loyalty soon shifted to the *Country Gentleman*. Of the two *Cultivator* articles, one is short and advised a correspondent why it was useful to add slaked lime to muck taken from swamps as an agricultural fertilizer. The other, nearer to his area of competence, was on "The pigeon hole borer. — *Tremex columba*," whose larvae are serious pests of urban shade trees. He provided an illustration of this species of horntail, described its devastations, accounted for its life history and, rather incidentally, offered a few hints on control (applications of repellent material to the trunk of the tree, destroying the female when seen, "thrusting a red hot wire into the orifices, and thus causing the larvae to perish"); he also noted that the grubs are often destroyed by the larvae of its insect enemies.¹⁶

With the entrance of the weekly *Country Gentleman* on the Albany scene, Eights began a busy year in writing. I suspect that it gave him a chance to use some writings of a more substantial nature that he had not been able to place before. Some of the pieces can be dismissed as titles, others require some comment, a few deserve to be quoted at least in part. If I have been overgenerous in the last, it is to make them generally available, considering the difficulty one has in finding sound copies of the original publications.

In the month of January 1853, Eights contributed to three issues. The first items were reprintings: "The pigeon hole borer" (under the general title of "Entomology") and "Slaked lime and muck as a manure." The next contribution continued his column on "Entomology," an account of "*Pimpla lnmator*. — Fab." In his account of the pigeon hole borer, he mentioned *Pimpla* as one of its insect enemies. *Pimpla* is an ichneumonid wasp; the article includes a handsome illustration of one of these "benefactors to the human race...instruments ordained by a wise Providence to keep within due bounds, those otherwise ruinous ravagers of our forest trees." He describes in ample detail the elegant searching, hole-boring, and egg-laying behaviors of the females that end in the deposition of eggs within the bodies of borer larvae deep within the wood of infested trees. The final piece for the month, entitled "On the study of insects," reprinted, with some additions, his introductory essay of that name in *The Zodiac*; it closed with an editorial note that the author would answer queries and undertake identification of insects.¹⁷

February brought three articles and a footnote. The note was added by the editor to a popular account of the "barking wolf," evidently our coyote or, as Eights called it, "prairie wolf." "Dr. Eights of this city has furnished the following anecdote of the Prairie Wolf, which came under his own observation": "A few years since, a pair of these interesting animals were sent to this city, and kept by a friend of ours during the winter, in the hay loft attached to his stable." They became quite tame but were unpopular because at night they were allowed free range, to the detriment of neighbors' poultry. A change of habitat to the country did not change their habits; one was shot, the other then placed under close confinement.

The first article of the month was "Geological notice of the coast of Patagonia," entirely drawn from an earlier article that we have already treated. The second article was on sheep, of which more anon, and the third was another contribution to "Entomology," on the "Bark beetle — (*Scolytus destructor*)," rewritten from his "Some of our injurious Coleoptera," with an illustration

added; he expanded his coverage but still knew no protection from their attacks.¹⁸

Eights's account of sheep, ostensibly wild sheep, of which he had no knowledge in nature, was poorly titled. It started with an illustration entitled "The Rocky Mountain Sheep," and this served as the title of the whole article. It was, otherwise, a singularly muddled speculation about the origin of domestic sheep. While taking a perhaps justified aim at the notion that the mouflon alone was the sole progenitor of domestic breeds, he overstated his case, exaggerated the genetic uniqueness of domestic varieties, pontificated about loss versus acquisition of physical characters (especially the tailed condition) and generally showed himself out of his element. He lacked understanding that it was precisely domestication that made possible the proliferation and survival of varieties unlike ancestral forms. His suggestions in regard to "preserving" wild species made even less sense: He urged their domestication as "the means of preserving the history of an interesting race of animals, which we very much fear will shortly disappear!"

In his articles in the *Country Gentleman* in March, five in number, his name appeared directly under the title; no date was given. One was "On the origin of honey dew"; "Dissemination of the seeds of plants" was in three parts; the fifth was "The swift fox. — (*Vulpes velox*. Say.)."¹⁹

While referring to the incidence of honey dew in Albany the previous early summer (1852), there was little direct observation in the article on this noteworthy phenomenon (where tree leaves "exhibit an appearance as if they had but recently been washed by some viscous fluid, which, upon becoming dry, gave greatly the resemblance to a thin covering of varnish"). Combining the straw-man approach with the supposition that one speculation is as good as another, Eights trotted forth theories ranging from insects to peculiar aspects of weather as the primary causal agent, only to plump himself down as promoter of but one. There followed a nearly microscopic description of the typical aphid: a soft insect with a tubular beak at one end, the other end terminating in a pair of tuber-

culated knobs through the orifices of which droplets of saccharine fluid are copiously excreted. The account is overall interesting and well informed.

"Dissemination of the seeds of plants" is a mixed bag. (I do not object to literary devices that prepare the way for what must be told, although that may be done easily or it may be strained; what I object to are totally misleading and obfuscating statements that were no truer in 1853 than now.) Eights could write clearly. How he came up with this is beyond me: "It would seem to us that unless Nature had provided some adequate means for the diffusion of plants over the earth's surface, that the interesting operations continually going on in their floral developments, for the perfection of the seed, would appear almost altogether unnecessary. But that such means have an existence in the numerous tribes of the vegetable creation, we have every reason to believe, and sufficient proof has been furnished, in our opinion, by their continuous and unerring reproduction." Anyway, although I deny that "the agencies of man are but limited" in aiding the dissemination of plant propagules, he is right finally: Many plants produce massive numbers of seeds (he has figures), some of those seeds retain their viability for many years (his instances come from Professor Lindley) and modifications of seeds and their parts for dissemination are manifold and often surprising. Winds, rivers, and ocean currents transport seeds and spores. Animals assist to an extensive degree in the dispersion of seeds (this must be balanced by the certainty that in some cases, destruction of the seeds as food occurs). Many plants are dispersed by human agency. Plants themselves aid in dispersal and planting, as by projecting seeds in many ways; some seeds and fruits have directional hairs that enable them to creep and even bury themselves. Mountains, rivers, and oceans are "unable to affix barriers to the migration of the seeds of plants" but (he says) certain inborn characteristics prevent a general mixing of plants of tropics and polar regions. Within a single climatic zone, there will ultimately prove to be no barriers: All plants of that zone will soon be found throughout it. That dismal outlook is hailed as "one of the richest blessings to be

derived from the industry and persevering intercourse of civilized nations”!

The article on “The swift fox” is taken entirely from other authors. As for its name, he thought the animal not particularly swift: People who say so are mere copyists; he suggested the name “Prairie fox.”

The month of April by its end brought a change, although the first two essays, “On the cultivation of cochineal,” were tame enough. It was surely a subject known to Eights only second-hand. Of more importance, the final essay of the month began a phenological series, “Scraps from a naturalist’s note book,” reminiscent of “The naturalist’s every day book” of another era. One can only suppose that the return of spring inspired him to start the calendar of a new season. Since these articles were factual and the subjects claimed to apply to Albany, I shall pay close attention to them, although sometimes without quoting them in their entirety.²⁰

The articles on cochineal need not be reproduced, since they are a good story well told that he got from other authors. It ends in the approved way: When the mature aphids are gathered, “the process of extinguishing their existence becomes necessary.” They may be either exposed to the roasting rays of the sun; put in pans in an oven; or “thrown into bags, and submerged in boiling water.” “Thus the poor little insects are either baked or scalded to death to furnish the human race with their most magnificent scarlet dyes.”

His phenological notes in “Scraps from a naturalist’s note book” follow.

“Scraps from a naturalist’s note book,” No. 1 (18 April 1853). After the usual elaborate introduction, there is an account of the half-hidden fragrant flowers of trailing arbutus, “a hardy little evergreen, which has a geographical range from the frozen regions of the north, all the way to the extremity of the American continent, at Cape Horn.” Another harbinger of spring is liverleaf, *Hepatica* — “but a few years since...this little plant was held in high repute as an efficient remedy for various descriptions of disease” but it has fallen into disuse. With it are found rue anemone, spring-beauty, and his *Viola ovata*.

Trees in bloom include willows and poplars, alder, hazelnut (a plant that deserved cultivation). Robins, bluebirds, and pewees were heard calling a few days earlier but colder weather soon forced them to retire southward. Neither insects nor the migratory birds that depend mainly upon them for food have yet appeared.²¹

In May 1853, “Scraps,” No. 2-5, appeared once a week.²²

“Scraps from a naturalist’s note book,” No. 2 (25 April). Robins and song sparrows now sing throughout the “light brush wood that covers the pine plains.” His characterization of the song of the latter is certainly exuberant if not misleading. Bank swallows were first seen a few mornings ago; chilly weather sometimes reduces clusters of them in nest cavities “almost to a perfect state of torpor.” In the latter part of May, “the piratical carrion crow [a misnomer]...in parties of four or five” await emergence of the young swallows. A pair of kingfishers was seen a few days ago, “on the telegraphic line where for a short distance it follows the bank of a small murmuring stream.” He alleges “a striking resemblance to the common King-fisher of Europe.” His willow butterfly (the mourning cloak) overwinters as adults; he describes the larvae as sometimes abundant enough to denude whole willow, poplar, and elm trees, bending the branches “downward by the weight of their almost countless multitudes.” There were few reptiles and amphibians as yet: exceptions being a single garter snake and what he calls “the ordinary marsh [pickerel] frog, (*Rana palustris*), heard from “stagnant pools”; several were seen “industriously employed in attaching their spawn to the submerged twigs at the bottom.” (One wonders that the spring peeper was not mentioned.) Vegetation is as yet not far advanced. An exception is skunk cabbage, everywhere piercing the dark soil of swampy and moist areas. “This plant is remarkable for the exceedingly attenuated and nauseating odor which it freely disseminates”; yet “it is highly esteemed for its medicinal virtues.” Other plants: alder, whose staminate catkins produce vast quantities of pollen, contributing to the “sulphur showers” of spring; bloodroot, of which “double” forms were known

and might be selected to adorn gardens, its reddish sap a good dye (he says), if a proper mordant is supplied, its "medicinal qualities...too well known to require an enumeration."

"Scraps from a naturalist's note book," No. 3 (1 May) Using his introduction to *The Zodiac* contribution for May, Eights then wrote a series of short essays, each pretty much on one subject. The muskrat or musquash, a common mammal, is fond of roots of the calamus and of freshwater mussels; their tunneling propensities were sometimes detrimental to pond embankments. Barn swallows have become common, invariably taking their food and drink on the wing. Schools of small herrings are seen, "having thus early been developed from the spawn." Ladybird beetles are about and ought to be encouraged on any plant that may be infested by aphids. Bacon beetles (dermestids), dreadful pests of kitchen and larder, are seen commonly; great care should be taken to prevent their establishing themselves. Various plants are mentioned as in bloom: yellow dog-tooth "violet," a handsome plant that might be usefully cultivated, although it is "of little practical utility, with the exception of the roots, which are sometimes made use of as a vegetable diet when properly prepared"; two species of buttercup, four violets, wild strawberry, horsetail (releasing spores), and shad-bush — the edible fruit of the last, he claimed, "can, by long cultivation, be greatly improved." A long essay on red maple follows; he thought frost had little to do with the induction of bright autumn coloration; he held that a dry summer, by making the leaf cuticle "opaque," dulled leaf colors to the eye; he thought the brilliancy of coloration of American forests dependent on "the much greater transparency of our atmosphere, and consequently superior intensity of light"! Red maple bark yields a good cinnamon color with an aluminous mordant, intense black when prepared with sulphate or acetate of iron (Bancroft), while Darlington reported that the bark affords a "dark, purplish blue dye, and makes a pretty good blueish-black ink."

"Scraps from a naturalist's note book, No. 4 (9 May). He thought the poor daylight vision of

bats (he uses the species name *noveboracensis* but probably had not examined the species critically) exaggerated, since he had witnessed their ready escape from places of confinement at that time, "exercising an ingenuity and exactness in the manner of accomplishing it." He seems to attribute a kind of winter dormancy to red squirrels. Purple martins have returned; they are great favorites because they drive away birds of prey; many people construct "mimic houses" for them. Two specimens of great gray owl had been shot recently in the Helderbergs; they were being prepared for exhibit by James A. Hurst, state taxidermist. The American shad has been leisurely ascending the Hudson River for the past month; they were only recently to be found near Albany; on their return from spawning on the upper Hudson "about the last of May, they have become so much reduced in flesh as scarcely to be fit to eat." Insects had suffered greatly from recent cold, sustained rains. Vegetation: slowed by inclement weather and not nearly as far along as usual for this season; leather-wood is in full flower; besides the singular toughness of the bark (used as cordage by the Indians), the bark, if swallowed in the fresh condition, "immediately produces a burning sensation of heat, then a severe retching, which terminates in a violent vomiting."

"Scraps from a naturalist's note book," No. 5 (16 May). The large yellow pond lily seemed ahead of schedule in blooming (he used the name *Nuphar advena* but probably referred to *N. lutea*; he ascribed to it eminently edible tubers, leaves, and seeds). His glaucous laurel (now *Kalmia polifolia*), was in beautiful flower in a sphagnous pond some two miles easterly from the city, its only locality in this area; it was there accompanied by leather-leaf; both deserved cultivation. Spotted cranes-bill, a pretty herbaceous plant, commences blooming in early May and continues for a long period; a popular garden flower, it was highly esteemed among Indians for medicinal attributes, "as an efficient remedy for most of the diseases by which they were afflicted." He had recently examined a specimen of cliff swallow (he uses the specific name *fulva* but this is no longer accepted) shot south of the

city; he describes “its somewhat curious history” in detail — a pair of them appeared at Whitehall in 1822; ten years later, they were found in southern Albany County. Chimney swallows (swifts) are again present, having “taken up their usual quarters within the tall, unappropriated chimneys attached to our dwellings”; these are the earliest birds to stir in the morning, the last to go to roost at night; he describes well their swirling flocks as they descend slowly into their favorite chimney at dusk; he thought that some of the flocks were composed largely of male birds, while females were scattered more widely in their nesting activities.

In June 1853, Eights contributed three essays, the first, undated, pretty much a reprint of previous writings; all are in his “Scraps” series.²³

“Scraps from a naturalist’s note book,” No. 6 (no date). His accounts of the purple side-saddle or pitcher plant and the rose leaf-roller moth are similar to essays that he contributed to *The Zodiac*. Both are, naturally, good stories; he thought that the leaf-rollers were best killed by shaking them off their host plants onto a sheet of cloth; they were otherwise extremely tenacious of life, neither strong suds nor saline solutions killed them effectively.

“Scraps from a naturalist’s note book,” No. 7 (14 June). Eights was in a proselytizing mood, anxious to persuade his fellow citizens to plant and transplant American plants to their gardens. He feared that the most beautiful of plants bloomed in swamps and marshy places, “unfolding their loveliness to eyes that do not see,...evolving their fragrance...to senses by which they are never appreciated.” In the case of his white honeysuckle, *Rhododendron viscosum*, he sensed a reason that its handsome flowers, whose perfume could be perceived at a distance of half a mile, were not cultivated. Gardeners experienced difficulty in cultivating it: Perhaps it had been “wisely intended to entice the more sedentary inhabitants of our cities to indulge in a morning or evening walk in the country, and...restore their exhausted energies, without resorting, which we fear is too often the case — to the more vulgar influences of drugs, and

many other remedies of an artificial nature.” His common cranberry, *Oxycoccus macrocarpus* (it is now *Vaccinium macrocarpon*), was in abundant bloom; he hoped that it would be cultivated, for “rapid improvements in the surrounding neighborhood, are gradually obliterating all traces of it from the face of nature.” The berries, which may easily be kept through the winter, should not be picked until fully ripened on the vine. Several species of aquatic vertebrates seemed to have appeared near Albany through the agencies of northern and western canals: small-mouthed black bass, which was first noticed in 1830; soft-shelled turtle; “the Proteus of Lake Champlain” (now *Necturus maculosus*). He thought the eventual result would be that species will be “found freely mingling together, and concentrated in the same distinct localities.” His account of the nighthawk is instructive; he intimates that to see and hear it, one must “stray beyond the precincts of our city” (in later times, it was precisely the city where it might be observed in great numbers, since it used the tarred and graveled flat roofs of urban buildings as preferred nesting sites); whether males in displays actually “throw a quick and complete summer-set in the air” may be doubted.

“Scraps from a naturalist’s note book,” No. 8 (20 June). Birds, he finds, “have now almost discontinued their melody” — oddly, Eights supposed they were now so engrossed in incubation and rearing their young, that “the insect tribes are committing their depredations with the greatest impunity”! The chickadee, or “black-capt titmouse,” he recently saw in a small flock in the Helderbergs; he alleges that these “hardy and vigorous little birds have hitherto been generally supposed to withdraw themselves to the cold regions of the north, for the purpose of nidification, on the earliest approach of the warm days of spring” — in contrast, he describes winter behavior quite like that of our time. Have nesting habits so much changed? His description of winter-feeding, mixed flocks of chickadees and downy woodpeckers is well done. He refused to credit one charge against chickadees — that they would attack a sickly comrade and pierce its skull and eat the brains: “this species of

barbarity...would prove perfectly inconsistent with all the other habits of its life." One of the most beautiful of native wildflowers, moccasin flower, blooms abundantly in "open forests of pine"; after a long and windy disquisition proving that plants that please the senses do not often provide anything useful to man, while those that are medicinal or otherwise beneficial are not noted for their beauty, he alights upon this orchid as a paragon of medicinal virtue. Fireflies, he found, were late this year; they are always sensitive to any degree of cold.

At mid-year, the *Country Gentleman* began its second volume. James Eights's "Scraps" continued until early November. There were two contributions in July.²⁴

"Scraps from a naturalist's note book," No. 9 (27 June). As in his contributions to *The Zodiac* of similar date, he noted the diminution of most bird song, while that of whip-poor-wills might again be heard. Bats emerge in the evening to pursue various insects that are then abroad. His long account of the mountain laurel, thriving no closer to Albany than the Helderbergs, paralleled his former account in *The Zodiac*, but he added claims of Dr. Stabler who found beneficial effects from its use in quieting the action of the heart and other ailments. Pigeon hole borers now make their appearance; he found them to attack elms, maples, and sycamores (buttonwoods).

"Scraps from a naturalist's note book," No. 10 (4 July). Most of this contribution concerns two destructive beetles, the rose-chafer (his genus *Melolontha*) and the grapevine-chafer (genus *Anomala*). The former rose pest, he says, was not formerly found in this section but had become so common that it, "in the space of but a few days perfectly succeeds in rendering the appearance of these plants alike filthy and disgusting in the extreme. In such large numbers have they presented themselves, that it is not unusual to discover as many as fifty, and sometimes eighty, committing their depredations upon a single flower, consuming the petals and devouring the bud in a single hour." Shades of our modern Japanese beetles! Despite the enormous numbers that must have been present, he

confidently recommended the direct killing of adults by hand ("by crushing, or shaking them into basins of scalding water, and feeding them to the fowls") as offering a sure remedy to their depredations. A specimen of a marine fish, the New York sole, had been caught in a seine in the Hudson near the city; he had helped James A. Hurst, State Taxidermist, identify it.

Four parts of "Scraps" were published in August 1853, all of them signed "J.E.," one of them indicated as from Albany.²⁵

"Scraps from a naturalist's note book," No. 11 (25 July). Since Eights had in hand the specimen of mole that he identified as *Scalopus aquaticus*, one must assume he distinguished correctly among the three species of moles found locally. The star-nosed and hairy-tailed moles have salient features that ought to identify them readily. I do not understand his anxiety to prove that, contra authority, his species possessed vision. I gather that if his specimen had an eye small but readily discernible it was not the species he named. That a mole "has the power of expanding or contracting it [its eye] at pleasure, so as readily to adapt it to the gloominess of its subterranean abode, or to the brightness of sunshine," is entirely mistaken. He was no doubt correct to defend moles as a useful part of the soil fauna. His short piece on the peach-tree borer and how to combat it was reprinted from an earlier *Zodiac* entry.

"Scraps from a naturalist's note book," No. 12 (1 August). A long essay on the hackberry tree incorporates considerable material from unnamed authors. He calls it nettle tree, a name that I suppose is accounted for by the shape of the leaf; as a berry, it offers much seed and little flesh; he supposes its wood similar to its relative in Europe, where it is cherished for its hardness and density; the bark is used for tanning and a yellow dye is extracted from the root. Oddly, he thought that the action of nurserymen to transplant and cultivate it was required, "thus preventing its extinction from the desolating hand of modern improvement." Since birds were assumed to disseminate the seeds, he was at a loss to explain its rather limited distribution; per-

haps it was due to “the circumstance of the lower portion of the flowers being almost universally in an imperfect state...that the seeds themselves cannot become perfectly organized in their nature.” Considering the immense number of highly successful species of plants with variously reduced, unisexual flowers, this is a most improbable diagnosis. His account of the pine-tree borer or tickler was adapted from one part of his “Some injurious Coleoptera” (1848). A prodigious number of young shad could now be seen, the product of the current year’s spawning season of this anadromous fish.

“Scraps from a naturalist’s note book,” No. 13 (15 August). The essay on the red-legged locust was taken from the *Cultivator* (1852). The main part of this number concerns the slippery elm. His main object was to draw attention to the wanton waste of one of the finest native ornamental trees. “By a reference to the ‘annual floral calendars,’ kept for the last thirty years, of the plants growing spontaneously in this neighborhood [mentioned nowhere else by him], we find several notices entered of the flowering of this species of elm, and numerous localities given, in situations where they now no longer exist.” He largely blamed those who stripped bark “from the trunk, for the purpose of obtaining the mucilaginous inner substance for medicinal uses.” The original harvesters got a pittance for their work and trees were destroyed. He described at length the medicinal and food value of the inner bark; the wood too had considerable usefulness. Since all these uses involve destruction of trees, it is not entirely evident how they were to be accommodated while preserving trees from harm.

“Scraps from a naturalist’s note book,” No. 14 (15 August). The account of the nenuphar or plum-curculio (or plum-weevil) was a long one. In it, the destruction visited upon the plum crop is not exaggerated. He felt that authorities were incorrect to state that the larvae complete their development promptly and emerge as adults; his observations led him to think that the larvae usually overwintered in that state and became adults just before emergence in the spring. (He

was wrong on both counts.) He was inclined to believe allegations that certain warty excrescences known as black knot were also caused by these insects. His controls were few: The effluvia of fermenting manure was said by some to be effective; others urged that sheets of white cloth be spread, the tree shaken, the fallen insects disposed of; Eights seemed to favor the use of swine in orchards to eat fallen plums before the larvae could escape. Two final essays are reworked versions of ones used in *The Zodiac*. His tumble-bugs have at least now become “tumble-dung beetles” that construct a pellet of dry (he says!) cow dung; otherwise, its habits have not changed. Dogbane flowers were still considered to be among true insectivorous plants. He added to this account reference to the splendidly iridescent dogbane beetles so commonly found associated with the plants at this time of year.

The month of September 1853 saw five weekly productions of Eights’s column, a few of them incorporating previously published paragraphs, one of them given no date.²⁶

“Scraps from a naturalist’s note book,” No. 15 (21 August). This week’s contribution begins and ends with familiar strains — thoughts of harvest and the congregations of swallows preparatory to migration, both of which signal the end of a growing season. Along with the familiar are three new, original essays of the sort that Eights ought to have been producing right along. The first of these must be quoted in its entirety: “Muhlenburgh’s [!] tortoise, (*Emys Muhlenbergii* of DeKay) — According to this author, in the Zoological Reports of the State of New-York, the northern geographical range of this rare reptile has been restricted to Rockland county, from whence the specimen was obtained from which his description was taken. For the last thirty years we have been in the habit of obtaining them from a small morass in the county of Rensselaer, situated about three miles to the eastward of our city; and a few days since we were enabled to obtain two fine specimens from this locality, which happily proved upon inspection, both male and female. In its form it is a remarkably symmetrical animal, measuring

about four inches in length, and is furnished on each side of the back part of the head, and a portion of the neck, with two irregularly formed, reddish-orange blotches, which sometimes become confluent. It is stated to be decidedly terrestrial in its habits, but we have never met with it but in the water, or in close approximation to it, into which it instantaneously plunged when disturbed, and speedily buried itself beneath the mud. Its shell is considerably elevated, and from some other characteristic points, it is, in our opinion, extremely doubtful whether it should not be removed from the genus *Emys*, under which it appears to be improperly placed, and arranged elsewhere, in a position more strictly applicable to its conformation and peculiar habits."²⁷

Notice of the balance of "Scraps" No. 15 follows. The overcup white oak (bur or overcup oak) is treated at length, although not from any particular seasonal point of view. There is a general description and its use in landscape plantings is recommended. It has wood of many excellent qualities. Its acorns are abundant and very large, bearing a conspicuous fringe of long threads at the edge of the cup. In another part, he describes "The Pure-water Spring" that is to be found on the eastern slope of an elevated area near the village of Greenbush. The water is exceedingly pure: only 0.0715 grains of insoluble matter in three gallons (56,000 grains) of fluid, and that entirely lacking sulphuric acid, magnesia, or iron. Its temperature, year-round, varied no more than one degree from 48°F. "It would appear from the geological structure of this hill, that this water derives its extreme purity and even temperature from having been gradually filtered through an extensive bed of gravel, which rests upon an impervious mass of stratified clays, over the sloping surfaces of which it is continually descending in a direction towards the opening of the spring." Its abundance, purity, and temperature, "we should suppose would strongly recommend it to the advocates of the cold-water method of cure, for its justly beneficial application in all cases of nervous debility, and various other diseases where the enfeebled constitution requires an acquisition of strength and vigor." His account of swallows and their

gathering for autumnal migration is adapted from an entry in *The Zodiac*.

"Scraps from a naturalist's note book," No. 16 (no date given). The main part is a detailed account of the white or Weymouth pine, a parallel of his recent accounts of bur oak and hackberry. This pine had been, he wrote, "gradually diminishing in number, until it has at length become exceedingly scarce in this vicinity." A number of them could, however, be found in a forest southwest of the city. In height, they may reach 150 feet, much of the height being a single trunk of arrowy straightness, with limbs only near the top, due to the overtopping and death of lower branches. Roots are shallow, capable of anchoring and nourishing the trees in the most sterile of soils. Each tree is the center of a stabilized area. Sandy soil that would otherwise be blown away is kept in place; areas of verdure develop and extend their influence "until trees of a different character successively take root in the soil, and flourish" (a neat hint of successional processes in ecology). They are, due to the shallowness of the root systems, often wind-thrown, with the entire, almost entirely undisturbed root system fully exposed. These masses of roots "are almost incorruptible," and are often used to construct fences that may last for nearly a century without decay. The species was becoming scarce and Eights recommended its cultivation. It was a tree of rapid growth and the planting of plots at annual intervals would soon ensure a perpetual supply. The final part of this contribution is on the pea-weevil, taken largely from his article of 1848.

"Scraps from a naturalist's note book," No. 17 (4 September): Three nonseasonal accounts, one on poison sumac, one on a wheat parasite known as smut-brand (genus *Uredo*), and one on the ocelot. Poison sumac is a handsome shrub, found commonly in the margins of swampy grounds. Most people, however, were likely to bar its close association in the social landscape, because of its extreme toxicity except in the cases of a favored few. Its poisonous properties, however, were removed by evaporation or boiling and it appeared that the sap from this shrub can

be turned into a substance similar to Japanese lacquer. In that state, it has lost its toxic properties. I cannot see that Eights had learned any of this from experience.

Wheat smut-brand, a serious fungal disease associated with wheat, had been carried to all parts of the globe to which wheat seed had gone. The parasite's life history is retold — in that day, it appears the only hope a farmer had to grow a crop free of it was to wash thoroughly and dry seed grain before planting, a remedy for which some usefulness was claimed.

The ocelot (a wild cat of the Southwest and Latin America) came to Eights's attention because somebody had one on display in Albany and when it died, the State Taxidermist preserved it. Eights, delighting in the animal's handsome color and markings, was in favor of domesticating it. He hoped to induce it "to forsake its wild and uncertain life in the woods, and...assume a more certain and regular existence, under the mild restraints of civilized life; it no doubt, if accomplished, would prove a most beautiful addition to the domestic arrangements of our dwellings, and quickly supercede our ordinary race of degenerated cats."

"Scraps from a naturalist's note book, No. 18 (12 September). Most entries concern insects, a subject brought on in part by Eights's feeling that the time of year had come when insects were making preparations for surviving the coming winter. His account of the cabbage white butterfly is mainly of interest because of his observations upon the great number of its insect enemies. His scientific name is now hopelessly outdated, his identification dubious, and his willingness to use imported names such that it is best not to pursue the matter. At one point, he even suggests that one of his species is a European butterfly not introduced into this country until about 1860. Of their many highly specialized enemies, he remarks: "This insect, in all its varying stages of existence, is singularly subject to the attacks of those belonging to several of the other tribes, and with such a host of active enemies, continually on the alert, it becomes a matter of some surprise how any of these caterpillars should ever escape with life."

"Among these parasites which conspicuously appear in the light of public benefactors, may be enumerated a tiny fly that lays its eggs on the eggs of the butterfly"; caterpillars are "punctured" by a species of *Microgaster* whose grubs "come forth and form little yellow cocoons, which are placed around the body of the exhausted larva"; an ichneumon fly, *Pimpla*, whose larva devours the entire contents the larva, "with the exception of the vital parts"; and a beautiful, tiny chalcid wasp, genus *Pteromalus*, that may be found issuing forth by the thousands from a spent caterpillar. Clearly, Eights was an early student of the natural control of insect pests, however unsystematic his approach to the subject. His account of the painted clytus, the locust borer (a long-horned beetle) was adapted from a previous publication. With the parasite of the wheat-midge, a serious agricultural pest, he returned to the subject of biotic control of pest populations. His example he claims to be the genus *Platygaster*, a tiny wasp to which has been "assigned...the peculiar and important duty of keeping in proper subjection that unrivalled pest of our fields, the Wheat-midge." "We regret that some means have not yet been discovered to multiply this interesting little insect, and thus effectually preserve our wheat fields from the fearful depredations of the midge." His account of the fringed gentian ("now finely in flower") is taken from an earlier notice of this beautiful, medicinally useful plant.

"Scraps from a naturalist's note book," No. 19 (20 September). An autumnal note (reprinted from a notice in *The Zodiac*) introduces a thorough essay on the white oak; this is followed by a seasonally appropriate but reprinted notice of the Pine Plains box turtle. The oak account is minutely detailed. He thinks its relative local scarcity due to severity of the climate and believes it likely to be wind-thrown when younger. "It is the only species of our oaks, on which a few of the dried leaves remain on the branches until the circulation is renewed in the ensuing spring" — certainly a notable characteristic of it, although not unique to this species. Fall coloration of leaves is violet or purple, quite in contrast to the colors of maples. He has the

acorns "extremely sweet to the taste," perhaps an overstatement. He feared that population growth and use of products made of this superior wood had so outstripped replacement that an emergency that called "for a speedy supply of this timber, for a naval increase," would find the nation deficient. Along with "some of the reflecting portion of our community," he advocated planting white oaks, "particularly over many of the vast tracts of land in possession of the government,...which have hitherto been considered of so little value, and as a barren and an unproductive waste."

Eights produced three chapters of his "Scraps" in October 1853, a couple of which require some comment.²⁸

"Scraps from a naturalist's note book," No. 20 (6 October). This account consists of essays on American holly and the house spider. Eights's account of American holly (there can be no doubt about the species he describes) is flawed and was clearly taken uncritically from a source available to him. This is not a critical matter, even if not acknowledged. His other long accounts of trees were likely as much from the literature and common repute as from experience; they are educational nevertheless. My objection is to his clear claim that holly is a common constituent of the local forest: "With us it grows not profusely, but may not unfrequently be met with growing on open grounds, in light woods, and in dry sandy or stony soils, easily to be recognised by its peculiar pyrimidical form, its brilliant evergreen foliage and the singular appearances of the leaves; and in the fall and winter seasons, by the light scarlet color of its berries." If it grew thus in the forest vegetation near Albany, the fact has escaped the notice of all botanists.

The account of house spiders tells how they are now depositing their eggs and covering them with web that protects them until they hatch in the spring. He notices that spiders, unlike flies, lack suction feet, so must counteract gravity by the aid of their webs. A spider crossing a ceiling proceeds cautiously from one irregularity to another, putting down a safety line of silk at intervals, so that a slip of its feet results in its falling only a few inches.

"Scraps from a Naturalist's Note Book," No. 21 (12 October). The first essay requires quotation in full.

"The Wild Pigeon — *Ectopistes migratoria* — Bonaparte. For a few weeks past this fine bird of our country has been daily seen, in large numbers, congregating in the light woods in the vicinity of the Hudson river, particularly in the neighborhood of stubble fields. They appear to be on a migratory expedition to the south, taking the journey, however, very leisurely, remaining for some considerable time wherever an abundance of food occurs, unless driven away by the annoyances of the hunter. This rather is an unusual circumstance now with us, although their appearance and disappearance are always exceedingly irregular every where in the State.

"This bird breeds in the neighborhood of our city, in the white birch and poplar trees; among the numerous swamps scattered so profusely over the pine plains, and not unfrequently, when the beech mast is in abundance, they remain with us during the inclemencies of the winter.

"According to the statement of the late Paul Clark of this city, who met with perfect success in hatching and rearing the young from the nest, these birds have three and sometimes four broods between the months of May and September, and lay but two eggs at a time in the nest, which the female sits upon fifteen days, when they become hatched, and the unfledged young, in eight days, are completely feathered. The same success attended some experiments in England, with a number of the birds sent out from this country. It is certainly very desirable that so prolific an American bird should be domesticated, and we oftentimes wonder that some unusual pains have not been taken for its accomplishment.

"For the last quarter century, these birds have rarely been seen flying in such prodigious numbers along the valley of the Hudson river as formerly, when, as many of our citizens may yet remember, it was no unusual circumstance to purchase as many as desired, in the markets, at one cent a piece."²⁹

Three short accounts complete this number. Bugleweed (water horehound) had been sent by

a correspondent, who wanted to know its name and medical virtues. It grows freely everywhere, does not have showy flowers but was previously esteemed as a decoction by consumptives "to lessen the pulse, and allay the irritation of a cough," and had been considered by some authors "a substitute for all narcotics. It has now, however, fallen into disuse."

A short essay on bedbugs was introduced, we are told, so that he could recommend "a simple remedy for their destruction" — which was "with a brush to wash the furniture that contains the insects...with the ordinary '*burning fluid*' [kerosene?] as sold in the shops." He much doubted that the species had first been imported into Europe from America, as some had claimed, "so that we are fully justified in believing that it is one of the many evils that accompanied the blessings which commerce has introduced into our country from other shores."

Flower buds of rosebay (which he calls "dwarf" but modern botanists refer to as "great" laurel) were, he noted, perfectly formed, "in which situation they are to remain until the succeeding month of June shall call them into bloom." It is not clear that he saw it in the Albany area, citing its northern limits along the Hudson as the Catskills (not borne out by modern maps, where a more extensive range is suggested). Perhaps, in this more northern part of its range, it was smaller in stature than in its best habitat. A respectable botanist reported it in New Hampshire, "though rather diminutive in size." He suggested its cultivation but knew of no use to which its wood could be put.

"Scraps from a naturalist's note book," No. 22 (15 October). Autumn is ushered in ("gradually passing into the dreariness of winter") by fall colors of trees. He has the colors about right (sugar and red maples, ashes, hickory, dogwood, birches, oaks). "This magnificent display of colors in our forest and landscape scenery is no doubt in some way or other intimately connected with that peculiar condition of our atmosphere at this season of the year, which has received the appellation of 'the Indian summer,' but its immediate relation has never yet been clearly pointed out. This smoky appearance of

the atmosphere is no doubt peculiar to Northern America...and has been repeatedly and variously accounted for." He still entertained, however, the belief that "it is produced by a partial and chemical decomposition of the atmosphere immediately contiguous to the earth's surface, owing to an acrid matter arising from a decaying state of the leaves of some of the trees peculiar to the country, most probably to those of the oak, which are well known to botanists to be far more numerous in species than are to be found growing over the entire surface of the globe beside. This, however, is not advanced as an explanation, but as a mere conjecture thrown out for the consideration of physiological geographers."

He had recently captured specimens of sex-ton beetles. He described from the literature their peculiar habits of burying dead animals and bits of carrion. He assumed that the purpose of burial must be securing the future of their young, not for their own food, although his argument was circumstantial only.

Winterberry (black alder), a deciduous holly, "when its branches are profusely covered with berries, in the autumn and winter, is one of the most beautiful ornaments of our damp woods and swamps grounds." The berries afford food for wintering birds. "This plant is a universal favorite among the families of many of our farmers, who beautifully ornament their rooms during the christmas holidays by placing the berried stems in tufts of evergreen moss."

In the *Country Gentleman* for November 1853, Eights placed two numbers of his "Scraps." This ended another of his seasonal calendars and it also ended, for many years, his association with that magazine. The last of the columns was dated by him as 1 November. Some speculations on the precise timing of "what happened next" will occupy a concluding paragraph of this chapter.³⁰

"Scraps from a naturalist's note book," No. 23 (24 October). Two essays only constitute this number, one a long account of flowering dogwood. His comments on its local distribution and growth form seem from his own experience. I judge comments on its medicinal value are from literature available to him. It blooms early

in the spring, at what Indians considered the time to plant corn. The leaves color well in autumn and the abundant handsome red berries, although bitter to our taste, are attractive to birds such as robins that are present in autumn. The wood is close-grained and hard, answering as a substitute for boxwood used by wood engravers in all but the finest work. It was once used as a stimulant and tonic as well as a substitute for quinine in the treatment of malaria. The other essay, a notice of the golden-crested kinglet, is short. At the time of writing, it was to be seen about fruit trees, in a brief stay on fall migration. They were not common and were seen an equally short time in spring. Nothing is said of song (in the spring) nor of any behavior, except its seeming fearlessness as it searched out insect food on the branches of trees.

"Scraps from a naturalist's note book," No. 24 (1 November). Eights confined himself to two topics in his final contribution. His account of wild rice makes one wish he had spent more of his life systematically gathering specific information on the status of the local biota. "This interesting plant was formerly not uncommon on many of the shoals and low islands interspersed along the waters of the Hudson river, and it is but a few years since that it was known to grow in some profusion on the small island immediately in front of the city of Hudson, and likewise on the margin of a pond situated but a few miles from the city of Schenectady. It was in these localities that our botanists at the time, were in the habit of procuring them for the purpose of supplying their herbariums with specimens." Presumably not from any personal acquaintance, he tells how the plant may be found by the square mile in the shallow lakes of western states and territories. Birds of prey feed upon the waterfowl that flock in to feed on the grain. To the same table of abundant food, native Indian tribes also gather. A canoe is run into the lake, workers bend over it the tall heads of grass and thresh out the grains into the bottom of the boat. "In such profusion does it exist in these regions, that from one small lake in Minnesota, eight hundred bushels were obtained from its surface, by the Indians alone, during the month of

August of the preceding year." Indians prefer it gathered in the milky condition but it has then to be thoroughly dried out before a fire before it can be threshed. Botanists, he said, were uncertain whether it was annual or perennial: with majority opinion favoring the latter (it is accounted strictly an annual by modern authors). He could not, in any case, understand why enterprising farmers had not thought of cultivating it. It thrived spontaneously, the labor of planting would be small, "the soil required for its growth being otherwise useless." As a fodder, too, it ought to be a useful, extremely cheap crop.³¹

An account of the white ash concludes this number. There is little specific local information on it and nothing is said of the striking coloration of its leaves in autumn. The winged fruits and their function are well described (for "seeds...eighteen *inches* in length" one would surely read *lines*). "The leaves and branches...are said to be so offensive, and even poisonous to reptiles, that they universally avoid coming in contact with them, and the leaf, it is also stated, gives immediate relief in cases occurring from the bite of the rattlesnake, and it is mentioned by Emerson that 'a more important property has been tested. An ash leaf rubbed upon the swellings caused by mosquitoes, removes the itching and soreness immediately.' [His reference here is presumably to George Barrell Emerson (1797–1881).] The same effect is produced on the poison occasioned by the sting of the bee. A decoction of the leaves is said to be an antidote to the poison of lamb-kill (sheep laurel, *Kalmia angustifolia*,) when taken by lambs."

One hears from Eights in all this no reference to his own activities nor that of the newly rejuvenated Albany Institute. At the Institute, James Hall's star was in the ascendance, the old order gradually passed (the death of Lewis C. Beck was noticed in the 21 April 1853 meeting of the Institute); Ebenezer Emmons, Sr., continued bravely to attend meetings when he was in Albany but was present only at intervals. It appears probable that his absence, in his new work with the North Carolina Geological Survey had something to do with the unheralded depar-

ture of James Eights for the gold fields of that state. To that subject the next chapter will be devoted.

NOTES

1. Henry Papers, Smithsonian Archives Record Unit 7001, Box 10, letter 311, 19 Feb 1850. The nature of "paper & specimens" is not further explained.

2. Henry Papers, as above, letter 103.

3. Henry Papers, as above, Letter 139. I have found no evidence that Eights went to Minnesota or anywhere else in the early part of this decade. How long Eights remained unwelcome in DeWitt's office is not clear. It seems quite likely that DeWitt, active in the affairs of the renewed Albany Institute, was in 1852 instrumental in placing Eights's two important papers (noticed below). In 1856, Eights, after his North Carolina adventure, used DeWitt's office at least as his temporary address (see JE's letter to B.J. Lossing, June 1856).

4. Henry Papers, as above, letter 169. Henry probably had no outlet for Eights's geological paper upon which Eights had fixed his hopes but was too polite to say so.

5. "We are gratified to learn," said the *Argus*, Anon., 6 March 1851, "that an effort is making to revive the old 'Albany Institute.' This institution was for many years one of the most flourishing in the country, and corresponded with most of the learned societies of Europe. Its collections and library are very large and valuable, and its revival cannot fail to do good to our city." See AI Minutes, 6 March 1851. *Argus*, Anon., 20 March 1851. AI Minutes, 20 March.

7. The story, as a precautionary tale, if nothing more, cannot be too often told, of how the elite of the scientific world vindictively ganged up on Emmons at Hall's command. The story concerns Emmons's unfortunate alliance with an aspiring school teacher of Greenbush, James T. Foster, and his geological chart (whose revised chart Emmons endorsed and Hall, it appears, took for a midnight ride on a boat from New York and threw into the Hudson River); the smug certainty of the nabobs of science that they had all the answers for all time; the proof that came too late that many of Emmons's claims in regard to the greater age of his "Taconic System" were well founded. John Mason Clarke, long an assistant to Hall, then his successor, tells the basic story, *James Hall*, pp. 204-216; D.W. Fisher, "Emmons, Hall, Mather, and Vanuxem," pp. 42-43, gives a thumbnail account. For a scholarly history, both of the role of Emmons in founding American geology and in defense of his "Taconic System," see: Cecil J. Schneer, "Ebenezer Emmons and the foundations of American geology" and "The great Taconic controversy." Professor Schneer has contributed valuable biographies of Emmons in C.C. Gillispie, *Dictionary of Scientific Biography*, 4: 363-356, and C.A. Elliott, *Biographical Dictionary of American Science*, p. 87. Both this history and the work of Emmons in North Carolina are reviewed by Markes E. Johnson, "The second geological career of Ebenezer Emmons...1851-1860"; I am grateful to Professor Johnson for biographical material on the Emmons family. For an unrepentant defender's view of Emmons, see testy old

Jules Marcou's review "The 'Taconic System,' and its position in stratigraphic geology" (1885). See also two wonderful letters by Marcou to J.M. Clarke, 17 and 24 Nov 1894 (that is, while Hall was still alive) (N.Y. State Archives, A4208-87, Box 5) — in the second, Marcou pointed out that he was not criticizing Hall "for mistakes made fifty years ago," but "my letter was on his report of 1892, which contains a rare amount of pure lies."... "Because James Hall is an old man; it is no reason not to oppose, all the lies which he continue[s] to pile up against his teacher and benefactor in geology and paleontology, Dr. Eb. Emmons. The first thing to do, is to stop James Hall from lying"! That Marcou's defense of Emmons may have had an effect on Clarke, see Clarke's "Nomenclature of the New York geologic formations" (1903), pp. 501-502, as well as the account of Hall's war against Emmons in his biography of Hall. Emmons was exploring the possibility of work in North Carolina at least as early as 12 Nov 1850 — see his letter to General J.G. Bynum (Ebenezer Emmons Papers, P.C. 475, NC Division of Archives and History, Raleigh); I thank Jesse R. Lankford, Jr., for help in locating this letter. James T. Foster, A.M., is difficult to pin down. His work, *Introduction to the Study of Geology: Together with a Key to Foster's Geological Chart* (Albany, 1850, possibly also 1849) is rare, the chart little known; his name is often given simply "J.T." and sometimes as "James G.," but was certainly James and probably James T.

8. See AI Minutes, 10 June, 20 July; Agassiz was elected Hon. Mem. on 31 July. The *Argus* announced "The American Scientific Convention" 27 Aug 1850.

9. A. Minutes, 5 February, 4 March, 18 March 1852; 4 March 1852 is the date of acceptance printed on Eights's paper.

10. AI Minutes, 1 June 1852. It appears that total costs were apportioned widely. Gavit did not do the "engraving" of the geological section — it was done in lithography by the Richard H. Pease firm of Albany. Gavit did, evidently, provide the plate of *Glyptonotus* (which must have been taken care of by "&c." in the costs of printing and preparation of plates). He did not sign or initial the *Glyptonotus* plate but, in the reprinting of it in 1856, the *American Journal of Science* editor (Dana) thanked him for providing it.

11. Eights, "Description of a new animal belonging to the Crustacea, discovered in the Antarctic Seas," AI *Transactions*, 2: 331-334. (Eights noticed, p. 354, that his new species of crustacean published in the earlier number of the volume properly belonged to the genus *Serolis*, not *Brongniartia*.) Without giving year, volume or pages, the editor (Dana) of *American Journal of Science* abstracted the *Glyptonotus* article as "A new genus and species of Crustacea." This was promptly copied into the prestigious English *Annals & Magazine of Natural History*. And, perhaps upon receipt of his own copy of the entire bound volume (as must have occurred, since he was by then a member), Dana saw fit to reprint the entire text and the two plates of the *Glyptonotus* paper. He included his own introductory commentary, so that, presumably, no one would get the notion he was yielding ground to anybody in his own zoological specialty. In addition, he dipped liberally into history and appended to this most of the notes on the natural history of the South Shetland Islands that Eights had published with his *Brongniartia* paper in 1833. The paper on clays, etc., was "Observations on the geological

features of the Post-tertiary formation of the City of Albany and its vicinity," pp. 335-353, preceded by one plate.

12. See, in Rittner, *Pine Bush*, R.G. LaFleur, "Glacial Lake Albany," pp. 1-10; R. Dineen, "Surficial geology of the Pine Bush," pp. 11-15; J. Donahue, "Origins and topography of the Pine Bush," pp. 17-22.

13. James Henry Salisbury (1823-1905) was associated with Emmons in his agricultural work in the State Natural History Survey. The absence of references to glacial or eolian contributions to topography will surprise the modern naturalist.

14. *Cultivator*, 2nd ser., vol. 9, September 1852. Some of the minerals had not been found in place by himself. Article is signed "J.E." but identified in annual index as Eights; the style of writing is unquestionably his.

15. *Cultivator*, 2nd ser., vol. 9, October and Nov 1852; the articles are signed J. Eights and Jas. Eights; both dated from Albany.

16. "Slaked lime and muck as a manure" and "The pigeon hole borer," *Cultivator*, 3d ser., vol. 1, Jan 1853. The lime-muck article is so short that I cannot be sure it is really by Eights (it is merely signed "J.E."). The other article is not only clearly his but is signed "James Eights." A short piece preceding the former, entitled "Potatoes in tan, plaster, and in ashes," has been attributed to Eights but with no reason.

17. With the exception of the piece on slaked lime, these articles are all signed with his full name; the reprints have the original dates, the last piece, the reworked one on insect study, was dated Albany, 20 Jan. *Country Gentleman* (henceforth, CG), vol. 1, pp. 11-12, 34, 42-43, 57-58, Jan 1853. Reprinted articles are not repeated.

18. CG, 1: 73-74, 74-75, 89-90 (sheep), 104-105, 1853. All were signed by James Eights at Albany; all are dated, the last specific date, 1 Feb.

19. CG, 1: 186-187, 152-153, 171, 186, 201-202, 1853.

20. CG, 1: 234, 250-251, 264-265, 1853. Unlike recent articles, "Scraps" articles were signed at the end merely "J.E., Albany." The first was submitted by him on 18 April.

21. Today's common names are used for plants and animals when there will be no confusion. In case of doubt,

I use his name (scientific or common).

22. CG, 1: 282-283, 296-297, 314-315, 328-329, May 1853.

23. CG, 1: 377, 393-394, 407.

24. CG, 2: 13-14, 28-29, July 1853.

25. CG, 2: 77, 92-93, 108-109, 124-125, August 1853.

26. CG, 2: 140-141, 156-157, 173, 188-189, 205-206, Sep 1853.

27. The common name (now bog turtle) was properly spelled "Muhlenberg's." The old catch-all genus *Emys* was long ago broken up and today no American turtle bears it. The scientific name is now *Clemmys muhlenbergii*. It is strange that, recognizing the rarity of the species, Eights did not write more extensively on it. Perhaps strangest of all, he claims to have known about it all the while that DeKay was preparing his volumes on the Zoology of New York — and kept his knowledge hidden until after DeKay's death. This turtle has a peculiarly discontinuous range in eastern North America, seeming rarity made precarious by the ephemeral nature of its boggy habitats (they tend to dry up naturally and, of course, are too frequently artificially drained). See thorough reviews in C.H. Ernst and R.B. Bury, "*Clemmys muhlenbergii*" (1977) and Carl H. Ernst et al., *Turtles of the United States and Canada*, pp. 213-221.

28. CG, 2: 236, 252-253, 268-269, October 1853.

29. This is a seriously misleading account, whatever Eights had in mind. I trust that his own observations — and even references to local occurrences, etc. — are better grounded than the material that he uncritically borrowed from Paul Clark. A.W. Schorger, the authority on this species, found that the usual clutch was one egg, except under the rarest circumstance, and, in all probability, there was only one brood a year. Schorger supposes that Clark reported all this out of "executive courtesy" — because Governor DeWitt Clinton had said so! (See *The Passenger Pigeon*, pp. 108-110, 120-127.)

30. CG, 2: 284-285, 300-301, November 1853.

31. For an excellent account of wild rice, see: T.A. Steeves, "Wild rice — Indian food and a modern delicacy."

THE 1850s: THE GOLD FIELDS OF NORTH CAROLINA

Gold in North Carolina? Gold fever is an ancient disease. Few fortunes are made, many are lost. Aside from starring roles, there are those who briefly ride the tide of fortune and are soon forgotten. From newspaper columnists to outfitters, from technicians to advisors, the army moves in, draws its meager pay for an uncertain time and then disperses. Records are ill-kept, addresses are fluid. But for his publications, the loom of James Eights in the history of North Carolina gold would be meager indeed.

There was gold — and rumor of gold — in North Carolina. Notices, sometimes short, sometimes planted, often provided with shrill headlines, periodically peppered newspaper pages. In an outbreak of “North Carolina gold fever” in 1829, not even the sober pages of Silliman’s *American Journal of Science* were free of hyperbole. The amount of “Gold Country” in that state had been greatly enlarged within the space of six years. “So well were those rewarded who searched for gold, that in a short time, all the common laborers were engaged in digging for it; and one dollar’s worth of gold to the hand per day, was thought to be only tolerable business.” As for success, Henry B.C. Nitze and H.A.J. Wilkens say that the first gold from North Carolina was minted in 1829. In another wave of gold fever in the 1840s, even Albany’s *Argus* carried notices of this or that farm turning up lumps of gold.¹

When James Eights went to North Carolina has not been precisely established. It is probable that his presence there owed much to the depar-

ture of his friend Ebenezer Emmons, Sr., from Albany, victim of the machinations of James Hall. On 12 November 1850, Emmons wrote to General J.G. Bynum (evidently in the Senate of the state of North Carolina) a private letter outlining his willingness to serve as director of a renewed geological survey of the state, what he would like to accomplish, and what he considered his needs. He had, it appeared, already been a visitor to North Carolina, where “Mr. Davis,” a mutual friend, had urged him to submit a proposal to Bynum. He proposed a salary for himself of not less than \$2,500 per year, over a period of two years in the field and six months of laboratory work — the analytical work to be done in Albany, where his chemicals and apparatus were. Two assistants would be required, one of whom he hoped might be his son — both because he had been with him throughout the work of the geological and agricultural surveys in New York, except for the first year, and because “He is the best draughtsman I have ever known.” The Emmons survey lasted until Emmons’s death 1 October 1863 and the resignation of young Emmons 1 April 1864. Its latter end was crippled by the Civil War, and marauding Union soldiers in raids on Raleigh destroyed most of the collections that had been accumulated.²

The act authorizing the Emmons Survey “was passed during the 1850-1851 session of the North Carolina Legislature, and ratified January 24, 1851. Emmons was appointed October 8, 1851, and the actual work on the Survey began

in January, 1852." By the time the survey began, Emmons was already busy. According to a promotional work by an author given the name of "J.G. Foster, Geologist and Mining Engineer" (but who was evidently the James T. Foster who prepared the geological chart and booklet that caused so much embarrassment to Emmons in his strife with James Hall), Emmons toured northwestern North Carolina "early in the year 1851." Emmons ("at that time a neighbor of the writer") "upon his return...gave such a flattering report of the gold mines...that the writer was induced to go and make a Geological and Minerological [!] examination of the mines in Mecklenburg and Rutherford counties, with a view of securing some valuable mines for parties in New York."³

James T. Foster emerges in one final relationship: James Eights's very first geological report in North Carolina was made to "Messrs. Foster and Wilson," of the Fisher Hill and Pucket mines in Guilford County, where there are two post-scripts: one signed by James T. Foster, one by J.T. Foster. A generous summary of Eights's report, dated 1 January 1854, follows. If his "Scraps from a naturalist's note book," no. 24 was properly dated 1 November 1853, and he was at that time still in Albany, he had less than two months in which to have made his way to North Carolina and have finished his survey.⁴

A Report Relating to the Fisher Hill and Pucket Mines...by James Eights, / Geologist and Mineral Surveyor. / 1854. / To Messrs. Foster and Wilson.

GENTLEMEN,

That portion of Guilford County in which are found the extensive mineral deposits [!] belonging to you, is situated in a south-westerly direction from Greensboro', and on the public highway leading to Ashboro'.

On approaching your property my attention was particularly directed to the general scenery. The country is composed of long, gently elevated, and gracefully swelling ranges of hills, which extend in a north-eastern and south-western direction, the intervening spaces being broken up into numerous smaller elevations, which terminate in slightly impressed ravines. Down

these ravines small streams pursue their course to those of larger volume, which discharge their waters into Deep River, one of the principal branches of Cape Fear.

The hills and dales just described are covered in part by native forests and in part by plantations, which, in combination, present a scene of symmetry and repose exceedingly beautiful. The trees of these forests are chiefly Hickory, Chestnut, Black Walnut, Butternut, Beech, Buttonwood, Ash, Maple, Magnolia, the Tulip Tree or Whitewood, the smaller Pitch Pine, and several species of Oak. The majority of these are not much less than ninety feet in height. Many trees of smaller growth also abound, such as Persimmon, Gum, Dogwood, &c.

The soil of these lands has been produced by a decomposition of the surface of the rock formation immediately beneath. This is evident from the fact that in every place where excavations have been made, the earthy superstructure appears to pass gradually into the decomposing surface of the rocky base. White quartz is the principal matrix of the veins of ores, and not being liable to decomposition like the rocks on each side, the veins are elevated above the ground, and can be traced for miles together.

The elevations and depressions of the original rocks appear to have been formed by an oscillating [!] movement of the earth's crust immediately beneath, and rents and fissures in the rocks being at the same time produced; they were then, or afterwards, filled with metaliferous substances from the vast seas of candescent matter flowing beneath.

The basis rock of this whole region has been denominated, by the most competent geologists, sienite, one of the distinct formations which constitute the plutonic, or lowest division of the geological scale.

This sienite is essentially composed of quartz, feldspar and hornblende; but it frequently contains a proportion of mica, and is then denominated sienitic granite. ...

Besides this variety of rocks there are many veins of granite and extensive dikes of trap....The dikes of trap are very numerous, and may be seen traversing the country for many leagues, and frequently assuming a thickness which is really immense; but in no

case do they appear to displace the metallic [!] veins.

In many instances where the trap rock approaches the veins of ores, a change takes place in its constituent parts by becoming talcose or micaceous slate, for the most part in a state of decomposition, especially at the outcropping of the veins. This peculiar composition and state of the rock may be always taken as a strong indication of the presence of the ores, especially of such as contain gold.

It is the general impression here, that gold is confined chiefly to the upper portion of the veins, commonly about the depth of one hundred feet, and that below this point, copper and iron pyrites are the principal minerals containing copper and iron only. But the iron pyrites in these is the true matrix of this precious metal. This is evident from the fact that when this ore has been found decomposed near or at the surface, gold is found in its pure metallic state mixed with the oxidated ore, the sulphur having been converted into sulphuric acid, and the iron into an oxide. Gold may therefore be expected in greater and greater abundance as the miners descend into the veins.

Having thus presented a general view of this interesting region, we proceed to describe, in a more particular manner.

FISHER HILL. — a property in which you are especially interested.

"Fisher Hill" is one of those long ranges of hills which constitute a striking features [sic] of this portion of North Carolina. It is covered with forest with the exception of here and there a cleared spot. The mining operations are carried on towards its South-eastern termination, about five miles from Greensboro'. The veins occupy a considerable space, being eight in number, and being well defined. Besides these, numerous branches proceed from one principal vein to another. ...

OLD FIELD VEIN. The "Old Field Vein"...is the most northerly of the "Fisher Hill" system, but is rather isolated in position. Its pitch...is about two feet in six to the North-west. The vein-stone is a pure white quartz, often having ferrug-

inous incrustations on its surface, and cavities within, produced by the oxidation and disappearance of some ore originally imbedded in the mass.

This vein of quartz varies in form and thickness. ...

These veins are imbedded in a mass of disintegrated talcose slate, generally of a greenish tint, terminating laterally in rotten granitic material, which in turn terminates in whitish feldspar in a state of decomposition. ...

The other veins of this series lie parallel to the one just described, and...bear the same inclination, and maintain the same width of inclosing walls.

The gangue or vein-stone is quartz rock, through which are disseminated iron and copper pyrites, and sometimes black and red oxides of copper, which occur either incrusting the pyrites, or freely diffused through it....Gold is found in all these minerals; but the pyrites appears to be its principal matrix, through which it is diffused in minute particles. ...

The vast amount of treasure contained in this hill can hardly be conceived. The whole range appears to be a mass of veins, traversing it in every direction. ...

But gold is not exclusively confined to the quartz veins. The partially decomposed rock, and the soil on both sides contain considerable quantities of it; and from the latter an amount has been obtained by washing. The operations have been conducted chiefly on individual account by laboring men, whose ordinary occupation illy prepared them for this employment. These inexperienced miners were, however, generally successful, and commonly acquired means to purchase lands, on which many of them are now living in comparative ease.

The yield of the auriferous soil is not precisely known, nor has the average per cent. of the veins been ascertained. The heaviest yield at a single trial was eighteen hundred penny weights from sixty bushels of ore.

THE PUCKET VEINS. The "Pucket Veins" are prolongations of those of Fisher Hill towards the South-west, and bear the same general characteristics in their geological formation.

The outcroppings of the quartz veins are about two feet in thickness, which gradually increase in width as the shafts descend. At one point a shaft was sunk about thirty feet, and a great quantity of auriferous iron pyrites was thrown out. This ore was ground and washed; and the average yield was from one to two dollars worth of gold to the bushel.

Since this property has come into your possession, this shaft has been worked to the depth of seventy-five feet....The miners are now excavating a tunnel to the side of the vein, which they expect to reach in a few days. I regret that I must make my report before I have learned the results of this exploration. You have, however, good reason for expecting that the ore at this depth will be found much richer than it was nearer the surface.* [*Footnote: I received a letter last evening from Mr. Wilson, the superintendent, in which it was stated that the vein had been reached, and that it was found to be exceedingly rich in gold. J.T. Foster. / February 22, 1854 {this is obviously the date that Foster sent the whole publication to the printer}.]

I conclude by expressing the opinion that the Pucket veins are not inferior in value to those previously described.

Overman, in speaking of this gold region, states...[not quoted here; the reference is probably to Frederick Overman (1803?-1852), author of numerous works on metallurgy, mineralogy, foundry technology, steel and iron manufacturing, etc.; there are no titles on North Carolina; the work cited may be: *Practical Mineralogy, Assaying and Mining* (1st ed., 1851, 11th ed., 1882)].

I have thus presented a concise description of your Fisher Hill and Pucket property, omitting [!] many interesting facts which might tell advantageously upon its value. ...

JAMES EIGHTS, / Geologist and Mineral Surveyor.
Fisher Hill, / Guilford County, North Carolina. / January 1, 1854.

P.S. In August last, a bushel and a half of ore from Fisher Hill, of an average quality, was subjected to trial with Gardner's Crushing and Amalgamating Machine, which yielded thirty-three dollars and sixty cents worth of gold. /

James T. Foster. [N.B.: a map of "Fisher Hill, and Pucket Mines" ends the report.]

In early April 1854, we find Eights reporting on another gold mining claim, that of the Ward Gold Mine Company.⁵

To A. B. STITH, / President of the Ward Gold Mine Company. / Greensboro', April 9th, 1854.

Sir,

In compliance with your request, I paid a visit to the Ward Gold Mine in Davidson County, and have to congratulate you and your associates on being in possession of so interesting a location. The result of my observations you will find embodied in the following brief report, which I sincerely trust may meet with your approbation.

This mining location is situated in the county of Davidson, about twelve miles to the eastward of Lexington. It is in the form of an oblong-square...covering an area of about four hundred and one acres of land....Nearly this entire surface of the ground is everywhere covered with forest, consisting of a noble growth of pine, numerous species of oak, and many other fine trees, all of which are beautifully adapted to the varied and useful purposes of life.

Extensive as this mining area may be, it is for the most part completely broken up at the surface by a large number of mineral strata and veins, and to such an extent has this system been carried out that the eye can scarcely rest upon a single square yard of its distance that does not, in a different degree, disclose evidences of their existence. Numerous however as these veins and strata appear, they all seem to differ in their peculiar characters, though at the same time alike prolific in their natures, each one bearing its proportion of the precious metal. Scarcely a handful of the surface-earth — I was informed — taken promiscuously from any point of its area, but seemed to be capable of yielding small portions of fine gold. Such at least were the result of several experiments made by Mr. Ward in my presence. There appears at this place to be a concentration of most of the good qualities of

many of the other popular veins embraced in this interesting section of country.

The geological basis of the county of Davidson is unquestionably the sienitic granite, and one of the most favorable positions of its developments is...a few miles distant from Lexington. Through this formation of rock run innumerable dykes of trap and trappean porphyries, embracing their layers of well characterised granite, with all the other substances which constitute the mineral veins and strata that essentially compose the great mining region in this section of the State.

The Ward Mine Location...is bounded on either side...by ranges of the coarse-grained trappean porphyry, which, as it approaches the metallic veins and layers...is seen gradually to receive a large proportion of serpentine among its constituent parts, and at length, to pass almost unperceptibly into a fine grained phonolite or clinkstone....These porphyritic ranges may be said to form the side walls of the great mass of [metalliferous] veins and strata which are found to constitute the Ward Mine.

This vast mass of mineral material is found to be composed chiefly of the following substances: —

QUARTZ, both in a granulated and compact condition, and which, in many places, are cellular, the cells being...filled with a brownish oxide of iron, resulting from the decomposition of the sulphuret of that metal; this is always to be considered, geologically, as a most favorable indication of a gold-bearing vein.

PHONOLITE or clinkstone. — This is principally composed of a compact feldspar. In its indurated state it abounds with iron pyrites or mundic...everywhere throughout the mass. This sulphuret of iron...is considered, mineralogically, the home of the gold, which metal is always rendered conspicuously visible immediately upon roasting, or on its decomposition from atmospheric influences. This clinkstone is generally in a state of decomposition...and furnishes in large quantities the substance from which the gold is abstracted at the works.

TALCOSE SLATES. — These most generally accompany the true gold veins...and at this place they embrace thin strings of quartz, which not

unfrequently, in most other locations, yield some of the richest deposits of gold.

CHLORITE SLATES frequently accompany the last mentioned rock, and in most of the copper mines of the mineral district are generally found associated with the richest ores of that metal; and small fragments of copper pyrites were repeatedly met with contained therein.

The porphyritic rocks, whenever seen, was always found to form a divisional line, separating the other portions of the entire mineral mass.

All these strata are arranged in oft repeated alterations, and run in a direction from the north-east to the south-west, strictly in accordance with those which characterise the great mineral vein system of the Southern States, and likewise correspond with it in many of its distinguishing qualities.

But the most favorable development at this mine is the massive veins of quartz which traverse the other strata just described...forming a series of cross courses to them. Two of these veins are strikingly conspicuous...by the immense number of scattered fragments strewn along all over the surface of the ground, and corresponding with the direction of their courses. It is immediately at this point of junction, where the quartz veins meet the layers of decomposed feldspathic rocks, that the heaviest amount of gold has nearly at all times been found, in most of the valuable gold mines known. It is in such situations that the precious metal is to be found deposited in nests or pockets — to use a mining term, — and these depositions are seldom if ever small. Those magnificent specimens of gold, recently obtained at this place, were procured from a position like this, immediately where the ground has been broken and thrown open to supply the companies' works with the material to keep them in operation. Shafts should certainly be sunk at each of these points of conjunction, wherever they are to be discovered; for we certainly are of the opinion that at these points the heaviest amount of gold is most likely to be procured. In fact, I will state that the appearance of these two quartz veins alone, if found on any other location, would readily entitle it to a reputation for mining operations equal at least to the majority

of the finest at present developed in the State of North Carolina.

I have thus, in a very concise manner, given you the result of my brief examination of the Ward Gold Mine, and have only further to add, that when these veins and strata become properly explored by mining operations...with all that judicious system of economy practised in other countries, that this mineral location must undoubtedly prove one of the most prolific in ores and metal, and likewise one of the most enduring, that the entire mineral region of the Southern States can furnish.

Respectfully yours, / James Eights, /
Geologist and Mineral Surveyor.

Without explaining how he got the specimens, at the Albany Institute meeting on 10 January 1855, "Prof Hall proceeded to explain the new views entertained by the best informed geologists in regard to the gold bearing rocks — suggested by the donation of auriferous ores from North Carolina to the Institute's Cabinet by James Eights an old member." I doubt that this implies a visit to Albany from Eights. A likely purveyor of specimens was Ebenezer Emmons, who was in and out of Albany, perhaps primarily in winter, when he analyzed his summer's work. On 31 May 1855, "Prof Emmons presented for inspection of Members some new species of fossils from the State of North Carolina [among which?] he particularized a new species of Graptolites & made some remarks upon that Genus & the characters that demonstrate their affinities [?]."⁶

Eights was in Flat Shoals, North Carolina, in June 1855. From there he made *A Report on the Geological, Mineralogical, and Other Resources of the Hiatt Tract of Land, Containing 2000 Acres, and Situated in the County of Surry, N.C.*⁷ His report follows.

This extensive possession of territory belonging to Messrs. A. and G. Hiatt, is situated in the southern portion of the County of Surry. ...

Within these boundaries, the Ararat river courses along through its northern division, so as to separate from the main or principal body,

about two hundred or more acres of tillable land, some of which being in a high state of improvement. This is a remarkable [!] fine stream of water, which, at this place, is of some considerable breadth, rapidly pursuing its way across the tract, by a succession of gently elevated falls or rapids, arranged in such a manner as to furnish, in almost every instance, some of the most desirable water privileges that the country can anywhere exhibit, and sufficiently copious to be at all times, readily applied to almost every species of mechanical purpose. ...

The surface of the country comprising this extensive area of land, is elevated to some considerable height above the general level of the river, and is principally formed by a regular succession of lengthened hills, terminating...in rather an abrupt [!] manner toward the bed of the stream. ...

These hills and valley, are...densely covered by a fine and luxuriant growth of forest trees and shrubs, comprising some of the numerous species of oaks, hickory, chestnut, maple, pine, and along the principal courses and depressions in the land, the tulip-tree or white-wood, buttonwood, birch, beach [!], locust, gum-trees, magnolias, laurels, holley [!], and many other species...together with an ample profusion of beautiful flowering and herfaceous [!] plants.

The scenery about this plantation is exceedingly beautiful, affording from many of its eminences, some of the finest views of the surrounding county, than can anywhere else be obtained, embracing the Pilot and Sauraton mountains, which are situated at but a comparatively short distance, in a direction to the southwest; while far to the north-west, and bounding the horizon in that direction the deep blue ridges of the Alleghany and Blue ranges of mountains, may easily be traced, imprinting their sharp and well defined outlines upon the bright vapory mists beyond....All these...tend...to render it, when in a proper state of improvement, one of the most desirable places of abode that this section of North Carolina can anywhere else furnish. The climate is at all times delightful; the soil everywhere of the best quality; and the Geological and Mineralogical characters of the rock strata of the

highest interest and importance to its community, and which only remains for facilities of transportation, in the way of Rail Roads, Plank Roads, Canals or River improvements, to render this section of the State one of the most densely populated and fertile districts that can elsewhere be exhibited within its confines.

This extensive tract is beautifully situated and admirably adapted to farming purposes, independent of its manifold advantages for manufacturing. The soil is much better than that of the average quality of the lands in most other sections of the State...and with some little care and attention...might easily be brought to a high state of perfection. ...

The geological structure of this section of country, embracing as it does this entire area of land, is exceedingly interesting. It belongs to the lower order of rocks, which have been designated, the Plutonic, in connection with some others which might, with strict propriety, be considered as members of the Metamorphic, or succeeding order. The strata which support the soil and form the base of the country appears to occupy an elevated or superior position among the Syenitic and Talco-micaceous formation which may be easily recognized, as forming the fundamental structure of the entire State of North Carolina, embracing all its numerous veins of metal, and ores, and freely disclosing them to the eye, whenever they have become denuded of the soil, and more recent rocks which covered them and approach the open light of day.

This formation...appears to be completely made up of interstratified masses of Syenitic, coarse-grained Granite, Hornblend slates and sand-stones, Talcose Granites and Slates, and micaceous Shales...; they likewise contain important veins of Copper ore, and extensive beds of the Magnetic Oxid of Iron, extending in either direction, far beyond the boundaries of the place. ...

These interlaminations of strata, are by no means found to present a uniformity of thickness throughout their whole extent, but seem to be constantly changing in every possible manner. ...

When these strata disintegrate, the principal portion of their constituent parts are either dis-

solved by the rains, or freely commingle and become dispersed through the soil. ...

Among the most important and useful ores of the metals, found in this formation of rock are those of the iron. They are chiefly in the state of a *Magnetic Oxide*, and occur in imperfectly formed octahedral crystals....They are powerfully attracted by the magnet, and in some instances possess a high degree of magnetic polarity, so as to render them a powerful natural magnet or load-stone [!]. These ores in all probability contain between seventy and eighty per cent. of pure iron.

The ores at this place do not seem to be confined to any individual stratum...but appear at times to be disseminated in a profuse manner throughout them all, while then again, they are so distantly scattered as scarcely to be discernable [!] in any; sometimes they occur in such a state of aggregation as to become a perfect compact mass, or bed of the ore. When in this condition, they become properly explored, and exposed to view, these beds seldom prove small and, are most generally, found to be associated together in some considerable number, and not unfrequently, separated from each other by irregular interlaminations of other strata of the prevailing rocks. ...

At this locality, these beds are in frequent alternations, forming a distinct belt or stripe, bounded on either side by quite a thick stratum of coarse grained granite and granular quartz. ...The iron is of an excellent quality, and has been extensively manufactured by the present proprietors, for the purpose of furnishing an abundant supply to the surrounding country, and sending off the surplus quantity for sale in the neighboring counties. For this object, he has erected a suitable building on the bank of the stream, containing two blast furnaces, which are kept in continual operation....These veins are situated about three miles distant from the river...and about a mile distant farther to the east occurs another series of these veins...rather of a better quality. ...

About two miles nearer the stream, the country is crossed in the same direction, by evidences of a much more important and profitable vein of iron, and of a much superior quality. ...

With these advantages alone, this plantation, in any other country, would justly be considered an exceedingly valuable tract of land. ...

Among the ores of iron, none appear to be more generally diffused through nature than this, and no other is superior to it for the manufacture of iron. ...

Beside this iron there is an extensive vein of quartz containing the sulphuret of copper, or copper pyrites, associated with that of iron. It has been traced for several miles across the plantation, and maintains a breadth of six or more feet. This copper is of an excellent quality, and exhibits evidences of an increase in its descent. ...

Sulphuret of Lead, or Galena, is frequently mentioned, as having been found, in some of the strata on this location; although I have not yet seen the specimens, I am inclined to consider it more than probable. ...

Several thick masses of beds of steatite, or soap stone, have been discovered running through the central portion of this tract of land. It is of a greyish, green color, and extremely unxious to the touch. It bears every appearance of being obtained in the largest quantities, and some of its useful applications may here be enumerated. Owing to the facility with which it can be worked, and its highly refractory nature, it may easily be sawn into slabs, or turned in a lathe, and the products applied, as fire-stones in furnaces and stoves; and also jambs for fire-places. It may be bored out to convey water as a substitute for leaden pipes. It is used in the manufacturing of porcelain, and forms a polishing material for serpentine ornaments, for alabaster and for glass. It removes spots of grease from cloth, and consequently is of use to the Fuller, and when ground up, is employed for diminishing the friction of machinery; besides these it has many other important applications.

In concluding this Report, permit me here to congratulate you, in having in your possession, one of the most important, and valuable tracts of land that can be found in the northern and western portion of the State of North Carolina.

JAMES EIGHTS, / Geologist and Mineral Surveyor. / Flat Shoals, June, 1855.

With this, except for a single item, James

Eights's direct connections with the state of North Carolina came to an end. His summary views on the geology of North Carolina conclude the chapter, but he had probably left the state when those articles appeared.

The exception is a letter to Joseph Henry, offering to collect specimens for the Smithsonian Institution. The letter is internally undated but it probably pertains to the year 1855.⁸

"To Professor Henry Smithson Institute.

"Dear Sir

"For the last two years I have been living in North Carolina, and during my many wanderings over its surface, have been repeatedly astonished at the wonderful development of *Reptile* life, more particularly in the western portion of its State, and often in my journeyings has the question arisen in my mind, Whether the *Smithson Institute* was yet supplied with its interesting *Fauna*? If not I should be highly pleased to devote some of my leisure time, in putting up for them a collection, provided a reasonable compensation would be allowed [!][.] Being as yet but partially acquainted with your regulation on the subject, I have deemed it proper [!] to address you for the necessary information.

"Besides this, I would inquire, has the institution been yet provided with full suits of specimens illustrative of the various mines of Gold and Copper from this exceedingly interesting mineral district? To this also I might devote some of my time and attention. I wish you would consult, if you please, Spencer F. Baird on the former subject, and send me at this place the required information. If you can put me in a way to obtain his Catalogue of the Smithson Reptiles I should be greatly obliged, as I have no works with me on the subject.

"Very Respectfully / Yours &c. / James Eights
"Greensbor'o / Guilford County / North Carolina."

As will be seen in the next chapter, it appears that Eights did not long tarry in North Carolina, although a date of departure has not been established. Whether he got a reply from Joseph Henry is not known.

Eights's final comments on North Carolina appeared in a serialized account of his observations on its geology and scenery in four parts in the *Mining Magazine* in 1858.⁹

NORTH CAROLINA. — ITS GEOLOGY, MINING REGIONS, SCENERY, &c. By James Eights, Geologist.

Should an intelligent traveller take his departure from the shore of the sea, and pursue his journey in a north-westerly direction across the State of North Carolina, he will find...that his progress is over an extended surface of a low and an exceedingly swampy portion of the land, the soil of which being of a deep brown color...with a muddy consistence, and extremely fertile in its nature, so as to yield...a rich return of sea-island cotton, and rice. As he continues to proceed into the interior...the surface of the ground...begins gradually to ascend, and become much more firm in its structure, and far more dry in its nature; and that the cypress and the swamp-willow, that had hitherto characterized the scene, and met his view on every side, in an equal degree disappearing, and giving place to a much more hardy growth of hickory and the oak. He will also...remark, that sugar and tobacco are now the most productive marketable crops to be derived from the soil, and Indian corn the staple material in furnishing an ample supply of food for the country. A very slight inspection now of the geological features of the region...will soon leave the impression...that it occupies a conspicuous position among the alluviums and post-tertiary formations of the great rocky system of our country.¹⁰

In pursuing his onward course for the distance of about twenty miles farther...he will...be met with a low escarpment...composed almost entirely of yellow sand, the surface of which being...principally occupied with an unmingled growth of thinly strewed native pines...and but partial evidences of culture. The sands composing this plain may be geologically considered as constituting the tertiary sands of the same great system of rocks.

After having...pursued his way along this belt of yellow sand...he will, now, not easily fail

to have his attention again attracted to...a second low escarpment...the surface of which, in every direction, presenting the remarkable contrast of a wide-spreading, open prairie, with the thin soil composing its surface quietly reposing on a portion of the cretaceous or secondary rocks beneath....The traveller...perceives that the surface of this plain is nearly destitute of trees, and on every side to be seen waving with a luxuriant growth of grass. The soil, also, will be found to be uncommonly dry...although, when but slightly turned over with the plough, it has...been known to yield quite an excellent growth of corn; and likewise...has been found fully capable of producing...a firm and compact species of grain, well known and esteemed in the southern markets, as the Georgian wheat.

Notwithstanding these evidences of its fruitfulness, but few corn-fields are to be seen, and any attempt at clearing for the purposes of cultivation, will...prove comparatively scarce.

After having passed over this prairie-looking surface...he for the first time will have occasion to notice that a distinct and remarkable change has taken place...around him. A series of hilly slopes will now be seen to occur, composed almost entirely of exceedingly tenacious clays and loams...while here and there...numerous rocky protrusions of the rocky base of the country...yields a permanent support to the soil.

Having, at length, accomplished his journey thus far into the interior, he has now successively arrived at what may be geologically considered as a divisionary line, marking the eastern boundary or commencement of the great mineral region of North Carolina, and which will be found to extend in an almost uninterrupted manner entirely across the country, until it fairly reaches the north and western termination of the State. This wide-spreading surface...will be found to be exceedingly uneven and hilly...a continued succession of a series of gently elevated hills, and slightly depressed vales, through the latter of which innumerable small streams or branches, as they are termed, are seen to pursue their thread-like courses....This extensive surface of the land, when not under culture, for the most part will be observed covered by a dense and somewhat luxuriant growth of broad-leaved

trees, comprised of many genera and species....Here, likewise, will he find the commencement of a soil...most beautifully adapted to the comforts of a white population, and also for the purposes of a general husbandry.

The general geological features of this widely extended upland region, on inspection, will prove to be of an exceedingly interesting nature, being composed of a vast series of rock, belonging principally to the great Metamorphic system of our land. ...

In commencing at the lowest development at this place...we...observe...parallel layers of some considerable thickness, constituted principally of feldspar and mica, with sometimes layers of associated hornblende and feldspar, so as to form a well-characterized diorite or granite. Besides these, dikes of trap...are not unfrequently to be met with. ...

Throughout these laminations veins of quartz are not unusually found, embracing...extensive deposits of...an exceedingly pure carburet of iron, or plumbago. ...

After having passed this rocky band beneath, our traveller will have occasion to remark that they...are seen to pass into a series of micaceous and talcose slates. ...

Within this shady [shaly?] belt of rocks are also frequently to be found continuous veins and ramifying branches of quartz, containing large quantities of native gold, freely commingled with auriferous iron pyrites or mundic, but this latter mineral is not always confined to the veins alone, but is not unusually seen profusely disseminated throughout the shales, in such a manner that when these crystals become exposed to the atmospheric influences, they speedily decompose, when the gold in all its richness and purity becomes revealed to the eye....Silver and copper are likewise found in this formation of slates. ...

In traversing these auriferous shales it will readily be seen that they occupy a breadth of space of nearly thirty miles...and have their terminating — though rather imperfectly defined line of demarcation — in the immediate vicinity of Chapel Hill....But what tends...to render this mass of rocky materials so extremely interesting and important, is in consequence of the well-

ascertained facts recently developed by the State geologist and some others, that convincingly prove it to constitute the floor...of the great bituminous coal-fields of North Carolina. ...

These independent coal measures are everywhere found to repose in an unconformable manner, directly upon the upturned edges of the auriferous group beneath. The lowermost stratum...of these coal-fields, is found to consist of a coarse conglomerate, entirely made up of rounded pebbles, originating from some pre-existing rock....These pebbles have now become consolidated into a firm and solid mass...of such a nature...as most admirably to adapt it to the manufacturing of mill-stones. A fine-grained sandstone...is found resting upon this conglomerate....Interlaminated with these strata...we find a series of clay-slates....Reposing on these slates, we now find a layer of much finer grained sandstone...and resting upon this, an indurated bed of fire-clay. ...

Upon these layers of clay, the first beds of coal are found to occur. They are five in number, and sometimes a sixth. ...

Fossil plants, peculiar to the coal measures elsewhere in our country, are not to be found in these shales; but the scales and teeth of sauroid fishes, together with their coprolites, as well as the bones of extinct animals, are everywhere abundant. Fossil plants, however, are found in the shales and grits beneath, but they are of a nature peculiar to these coal-fields. ...

Much doubt and uncertainty...has hitherto been entertained by geologists, as to the exact position in the geological system of our country these coal-fields should be placed...but the remarkable fossil organic remains of animal existence, but recently brought to light by Professor Emmons, has, we think, satisfactorily set the question forever at rest, for they distinctly denote by their peculiarity of structure, that they had an existence and exercised the functions of life at a period of time intermediate or between the deposition of the rocks of the Liassic and Triassic [!] ages....[No. 2 follows.]

Having at length conducted our traveller thus far over the formation of shales, that furnish a support to the coal measures of the district, we

must now direct his attention to...the rocky series that next successively occur.

Near Chapel Hill these auriferous shales begin gradually to diminish in thickness....As these pass away...they...give place to a much more solid and coarsely structured rock....This series of rocky material is of some considerable breadth, extending in a westerly direction...but a short distance beyond the farther limit of the county of Guilford. This...is the most interesting...geological formation...throughout the entire State of North Carolina, embracing as it does all the most extensive and prolific veins of copper and gold. ...

The entire surface of this interesting portion of the country...is...composed of long, gently elevated, and gracefully swelling ranges of hills. ...

These hills and vales are in many places extremely fertile, and are, for the most part, beautifully diversified by broadly expanded masses of native forest trees, and widely extended patches of cultivated fields; but no mountain eminences can anywhere be seen from these hills, which has a direct tendency materially to detract from the truly picturesque aspect of the scene. ...

The soil which constitutes these lands, has evidently been produced by a decomposition of the surface of the rock formations immediately upon which it rests. ...

Beautiful...as the landscape scenery of this portion of the State may appear, it becomes far excelled in interest by its geological construction. ...

Besides these varieties of the rock, there are many veins of granite, and extensive dikes of trap. ...

The metallic vein system...is almost universally in a direction from the north-east to the south-west, parallel with the ranges of the strata....They are for the most part entirely composed of pure white...quartz....It is these veins of quartz, with their associate shales, that contain all the metals and ores of this portion of the State. ...

The walls of these veins are found, not at all times, to maintain the same breadth throughout their whole extent, but converge and expand...to form a succession of heavy masses of the matrix,

which frequently contain considerable sized nests, or pockets, of the metals and the ores. ...

Another peculiarity of these veins is, their liability at times to send forth many lateral branches....These...have been the cause of much perplexity to the miners, and have often led them to relinquish the principal vein. ...

When these metallic veins are to be seen in their most perfect condition, there always appears to be a...systematic arrangement of the ores....In a...well-defined vein...we most generally found, that the auriferous sulphuret of iron...was most frequently seen to occupy a position in the uppermost portion of the quartz; this was invariably succeeded by its oxidized remains...freely exhibiting the pure metallic fragments of gold...then followed the brown iron ore, or limonite, and this was again succeeded by the copper pyrites. ...

The most general impression...is, that the gold is alone confined to the uppermost portion of the veins...and that below this point, the iron and copper pyrites usurp its place....But this we are greatly inclined to believe one of the popular errors of the day, for, in our opinion, the pyriteous iron or mundic alone constitutes the matrix, or true home of the gold; and that as we descend along the vein...there must consequently be the like...increase to the same degree. ...

When this ore of iron is found approximating to the surface of the ground, in a decomposed or oxidated condition, the precious metal which it contains is readily to be seen...in its pure and untarnished state; but on descending to a depth where the crystals are in an unchanged and more perfect form, the gold becomes no more visible....This apparent vanishment of the metal can be satisfactorily explained....When this sulphuret of iron has been...exposed to the action of atmospheric influences, the sulphur which it contains becomes...converted into sulphuric acid . . .; this powerful acid...has a strong tendency to...dissolve almost every thing but the silex and the gold that it so easily meets with in its way...the gold...is speedily revealed to the unaided eye.

By the expansive power of the heated matter in the earth's interior, these rocks have been brought into a metamorphic condition, and ele-

vated, where numerous fissures have been formed. In these fissures the various metals and ores, in a fluid and gaseous state...have been condensed within a matrix composed of the predominating material of which the basic rock consists....Where the heats have been most intense, these mineral ingredients have been promiscuously scattered....[No. 3 follows.]

Having detained our traveller...amid this most important mining region of North Carolina, we will now endeavor to conduct him...in a north-westerly direction towards Mount Airy. ...

After passing the western confines of the county of Guilford...he will find, on leaving Kernersville, that the entire character of the country begins rapidly to undergo a change for the better. The roads...pursue their course through a region densely clothed with fine forest verdure, which is extremely agreeable to the eye, and yields a pleasant protection from the more intense heats of a summer sun, with an almost continuous breeze...blowing...through the trees. The numerous 'old fields,' which had hitherto appeared so bare and desolate to the eye, with their densely covered 'sedge,' and which so disfigured the landscape and unpleasantly affected the senses, have, in a great measure, entirely disappeared . . . ; and the various clearings...assume a much more thrifty appearance, and exhibit a tidiness within their precincts which always speaks well for the good taste and skill of their occupants.

In progressing further along the way, numerous openings begin at length to appear...disclosing extensive views of the far distant country beyond....At other times, the eye is enabled to catch a passing glimpse of the Sauraton Mountains, which are seen to rise in rather an isolated manner from an ocean of verdure....For some space of time these are the only features that attract the eye of the traveller and give interest to the scene, but as the road emerges from a noble forest of oak and pines...the '*Pilot Mountain*' suddenly presents itself to the sight, bold, lofty, and sublime, rising in solitary grandeur far above the surrounding surface of the widely extended plain, like a lonely isle in the midst of the sea; and far away in the distance

may faintly be traced a long line of blue hills, stretching along the horizon as if to...mark the position of the elevated range of the '*Blue Mountain*' ridge.

This "wonder of nature" — as it has been frequently termed — the Pilot Mountain...always presents an exceedingly picturesque and highly interesting feature in the landscape scenery of the place, rising up in an abrupt manner from the apparently level surface at its base....Here the soil is good, and the scenery magnificent; the waters are fine and pure, and the air at all times delicious.

To the admirer of nature in all its truthfulness and beauty, nothing, in our opinion, can exceed the elevated and delightful sensations occasioned by a fine summer morning in this pure region of the country, and more especially to those, the tenor of whose lives has passed amid the noise and bustle of a crowded city. ...¹¹

The climate here is certainly delicious. For a greater portion of the time there appears to be a dreamy stillness in the air...that is productive of the most benevolent and happiest of effects; and if there is any portion of our country, where the unambitious man can settle down, and quietly enjoy the repose of life, in that healthful state of action so necessary to its perfect accomplishment, this we should conceive to be the spot.

Beautiful and exhilarating as all this may appear, it is by no means the only or most important object freely offered in this section of country to entice the traveller to linger a while on his way....We here allude to the somewhat recent discovery of important *sulphur and chalybeate springs*, but a few miles distant from this scene, and directly along the public highway leading to Mount Airy.

These springs are of so important and interesting a nature, that...we may be pardoned...in loitering a while at the place....They are situated on an extensive and well wooded plantation, belonging to Mr. William Hill, who has his residence in their vicinity. ...

The position of these springs we found beautifully located, and but a few hours' ride to either Mount Airy or the Pilot Mountain....In connection with the grounds in their vicinity, they are most admirably adapted for extensive improve-

ment for the comfortable accommodation of summer visitors. ...

These hills and valleys are most beautifully covered over by extensive groves of noble forest trees, consisting principally of hickory, oaks of various species, maples, gum-trees, tulip trees or white wood, lofty pines, and numerous others of an equally interesting nature; together with many shrubs and under-growth.... This fine foliage...when but cleared of a small portion of its under-brush, may...be elegantly laid out into extensive walks...winding gracefully among the trees, for the convenience of parties on foot, or for equestrians, whose health may necessarily require the more active exercise of the horse or carriage.

These mineral springs are several in number...but the most considerable of these are the two containing the sulphuretted hydrogen gas and that which contains the carbonate of iron. ...

The first and principal spring has a copious discharge of water...the latter oozing gently, with but little perceptible motion. ...

The sulphuretted waters of these springs have about the same strength...of those which have rendered the waters of Avon, and elsewhere in the State of New York, celebrated all over the Union. ...

These springs, varying greatly in the qualities of their waters, and combining the advantages of being in such close contiguity, may justly be considered as possessing a decided superiority over many other watering places of the same kind, where such are found not to be the case; and it appears really surprising that some enterprising individual has not been found long ere this to take advantage of the favorable position and varying qualities of these waters, and...become successful in making this interesting portion of North Carolina a fashionable place of resort for the multitudes that throng to the more northern States, to disperse their surplus wealth. [No. 4 follows.]

We propose in this number to conclude our rambles....After leaving the county of Guilford, and proceeding to Mt. Airy, near the borders of the state, the rocky structure of the country appears rapidly to have undergone some considerable change, soon losing their indurated and

massive characters, and assuming that of a more slaty nature; the gold veins too...having now almost entirely disappeared, and those of the copper are more rarely to be seen. The numerous beds of iron, and sometimes those of lead...having fairly usurped their places in the series.

The geological features of this division of the country...belong to some of the lower order of rocks which have been most generally distinguished as the metamorphic series. ...

In this western section of the state, this formation appears to be completely made up of interstratified masses of Gneissoid, and sienitic granites, Hornblende slates and sandstones, talcose granite and slates, micaceous shales, and trap dikes, together with nodular masses...and extended layers of granular quartz.... These varieties of the rock, together with their contained mineral veins, are all arranged in oft-repeated alternations. ...

These frequent interlaminations of strata are by no means found to preserve a uniformity of thickness throughout their whole extent. ...

When these strata disintegrate, the principal portion of their constituent parts are either dissolved by the rains, or freely commingle, and become dispersed through the soil in such a manner as scarcely to be discernible, while the more durable masses of angulated quartz, or flint, are left profusely scattered all over the surface of the ground.

Among the most important and useful ores of the metals...are those of the iron. They are chiefly in the state of a magnetic oxide, and occur in imperfectly formed octahedral crystals. ...

These ores of iron...do not seem to be confined to any individual stratum...but appear at times to be disseminated in a profuse manner throughout them all, while then again, they are so distantly scattered as scarcely to be discernible in any. ...

At one of these many iron locations that we had occasion to examine with a somewhat special degree of attention, we found these beds of ore to be arranged in frequent alternations, forming distinct belts, or stripes.... The iron is of an excellent quality, and has been extensively manufactured.... For this object suitable buildings have been erected on the banks of the Ararat

river, in the county of Surry, which contains several blast furnaces. ...

The valuable ores of iron already developed, and the many favorable indications elsewhere exhibited within the boundaries of this territory, afford satisfactory evidence that this metal may be furnished in inexhaustible quantities for generations yet to come. ...

Besides this iron there is an extensive vein of quartz containing the sulphuret of copper...associated with that of the iron. It has been traced for several miles across the country, and maintains a breadth of six or more feet. The copper is of an excellent quality, and exhibits evidences of an increase in its descent...The iron pyrites is of the arsenical variety, and possibly may contain fine particles of gold. ...

Sulphuret of lead, or galena, is frequently mentioned as having been found in some of the strata of this formation. Although we have seen only the specimens, we are inclined to the belief that it will be eventually found to some considerable extent...Several thick beds of steatite, or soap-stone, have been found running through the central portion of this district....

The account ends with a list of 63 minerals that have been found in North Carolina.

With this, all connections of James Eights and North Carolina were severed. Had the charm of the countryside faded? Did opportunities for further employment fail to develop? As with many other episodes in his life, we do not know how it began and know as little of its ending.

NOTES

1. Albany *Argus*, 30 July, 3 and 19 September 1829. In the *American Journal of Science*, Denison Olmsted's "On the gold mines of North Carolina" soon found its calm conclusions inflated by F.D. Reinhardt's "Gold mines of North Carolina." H.B.C. Nitze and H.A.J. Wilkens, "Gold mining in North Carolina," especially pp. 26-27, provides a technical review. The *Argus*, 28 May, 2 Jul 1844, returned to the topic. For history, see: F.M. Green, "Gold mining: a forgotten industry of Ante-Bellum North Carolina"; see especially pp. 146-147, for the setting just as Eights came upon the scene.

2. Emmons to Bynum, Ebenezer Emmons Papers, 1850, p. C. 475, N.C. Division of Archives, Raleigh; Meisel, *Bibliography of American Natural History*, 2: 425-426; I can find no evidence of any kinship of James Eights and his

family with that of Alpha Eights, who is listed in the U.S. Census of Guilford County, North Carolina, in 1840; oddly, the 1850 census for that county lists an Alpha Aytes (but no Eights) — I am indebted to Charles A. Walker, Jr., for this information.

3. Meisel, *Bibliography*, 2: 426; J.G.[?] Foster, *A Brief Sketch of the Early Discoveries of Gold Mines and Mining in North Carolina, Down to the Present Period* (1883), p. 4; I account the coincidences too many to doubt that this is the Greenbush Foster of the famous geological chart. Foster's claim, p. 5, to have been instrumental in 1851 in bringing the name of Emmons to the notice of Governor Reid can be only partly correct; perhaps he did, however, help convince the governor to appoint Emmons to the post. Emmons, Foster reported to the governor, "was designated and recommended as the most competent scientific gentleman available to make such survey." He continued: "The writer having been curator in the Geological Department of the State [presumably he means the State of New York?] knew him intimately, and could speak confidently of his eminent abilities." "He had also completed his last report on the agricultural resources of New York and was then ready for a new enterprise." There is no record that any James Foster whatsoever was ever associated with the New York Geological Survey, according to Robert H. Fakundiny, State Geologist (letter 5 February 1992). Perhaps Foster gave himself an advance in rank of some sort. His claim (p. 5) to have been "invited to assist" Emmons "in making the preliminary examination of the geological features of the State [of North Carolina]" is also undocumented and perhaps deserving of the same comment. His work, in any case, has too many names, dates and facts straight to be dismissed as entirely spurious. For a soberer estimate of North Carolina gold than Foster's self-serving promotional one, and of nearly the same date, see H.M. Chance, "The auriferous gravels of North Carolina"; I thank Alice R. Cotten for helping locate this.

4. Eights, *A Report Relating to the Fisher Hill and Picket Mines in Guilford County, North Carolina*; Foster, *A Brief Sketch*, does not mention Eights.

5. Eights, "To A.B. Stith, President of the Ward Gold Mine Company"; this privately printed report of two pages appears to lack a distinguishing cover. F.M. Green, "Gold mining," p. 147, noted that the state in 1852 began to encourage investment of capital for mining: "Geologists and...engineers published reports which proclaimed anew the valuable mineral resources of the State. Gradually the industry was renewed: old mines, ruined by wildcat speculation of the 1840's, were re-opened, and under more scientific management yielded a profit; and new companies were organized. Typical of such undertakings was the Ward Gold Mining Company [1854] with a capital stock of \$1,500,000."

6. *Al Minutes*, 10 January, 31 May 1855; two items in which Eights would have been interested: on 25 Jan, a motion was passed to set up a committee (composed of T.R. Beck, R.V. DeWitt, James Hall and others) to find out if a proposed new building for the State Cabinet might not usefully include Institute Library and Collections; and, on 19 Nov 1855, there was notice of the death of Theodric Romeyn Beck, president of the Insitute, his funeral to be held 21 Nov.

7. Eights's *Report on the Hiatt Tract* is dated no more precisely than June 1855; the pamphlet was printed in

Greensborough. Signed "Geologist and Mineral Surveyor," its emphasis was upon resources other than gold. I have shortened the article, tending to retain only material of general interest.

8. Smithsonian Institution Archives, Record Unit 305, Accession No. 712; although put with Accession Records 1850, this has no definitive bearing on its date; I thank Kathleen W. Dorman, Joseph Henry Papers, for her help with this. An archivist has given this letter the date of "1851" but that was at most a rough guess. Dorman calls attention to a fire in 1865 that destroyed many of the Henry letters to that date, so the absence of further letters to and from him does not mean there were none.

9. For the periodical, which lasted from 1853 to 1860, see Meisel, *Bibliography*, 3: 172-184; it was a magazine of real substance. Eights's article appeared in vol. 10(3): 183-

188, (4): 268-273; (5): 369-373; (6): 423-427; March to June, 1858. Since the magazine enjoyed a fairly wide distribution and is readily available, I have quoted only his more natural-history-oriented statements. I have not tried to account for every paragraph.

10. There is something wrong with the inclusion of *sugar* among staple crops. Can the reference have been to sorghum molasses, the traditional "long-sweetening" of the South?

11. It is interesting that a beautiful landscape is "nature in all its truthfulness"; but a desolate, disfigured landscape of exhausted soils, abandoned farms, tough residual vegetations of meadow-sedge (a term applied to the old-field grass *Andropogon virginicus*) and its associated exhausted human community convey no useful truths!

THE 1850s: JAMES EIGHTS AS ARTIST

THE TANGLED WEB

James Eights always accounted himself a draftsman. There must hardly have been a time when he did not make drawings of one sort or another. There is no record that he ever painted or drew portraits. Indeed, human figures in his reconstructed scenes are rather crude. He delighted in coloring maps; his drawings of invertebrates were precise and lovely. Several statements over the years hint of his antiquarian love for old houses and street scenes of the past. He probably learned to reconstruct such scenes from his competence in surveying (which he may have picked up, perhaps in a systematic way, from Amos Eaton). Of all his many undertakings, his reconstructions of Albany street scenes have always been his best-known activity. In that field, indeed, he is larger than life. Nowadays, any orphan artistic re-creation of early Albany street views may find itself credited to James Eights.

As with every other chapter in his life, one must grope for its roots, flesh out the main picture, and tidy up remains with little or no help from the main subject. The present aim is to start with Eights's major break into public consciousness in the 1850s — at first as a pirated artist, then as an acknowledged painter of antiquarian Albany views. Loose ends will be gathered up in an overall catalogue of his works in an ensuing chapter.

In the previous chapter, it was found that Eights was in North Carolina perhaps at least

through 1855, perhaps into some part of 1856. Using the longest-known calendar of events in Eights's life, we are told that he touched base in regard to his Albany street scenes in the autumn of 1856, with a pirated version of them appearing early in 1857. Actually, it did not happen that way.

While nobody indicates Eights to have participated, significant events were occurring at the Albany Institute and in the scientific community in Albany. On 28 February 1856, "Dr. Ebenezer Emmons...made some very interesting statements on the Gold Region of North Carolina illustrating his communication by diagrams and specimens from the locality described." Perhaps Eights was with him; perhaps at least Emmons brought news of his whereabouts. At the same meeting, "Benson J. Lossing of N.Y. was elected a corresponding member of the Institute." One wonders at that name, for Lossing it was, a contributing editor for *Harper's Magazine*, who brought out a bowdlerized and pirated version of Eights's illustrated history of Albany. The immediate question a few years ago would have been whether Eights learned about Lossing at this time. By now, the question is: Did Eights introduce Lossing to the Institute? The two men had already met.¹

The pace of life at the Institute was slow. At the meeting of 13 March 1856, Alfred B. Street was elected a Resident Member of the Institute, another name with possible Eights connections. Institute President DeWitt and Dr. Ebenezer Emmons were proposed to lecture at the next

meeting. However, on 27 March, "But few of the members being present Dr. Emmons was invited to lecture on the Coal and Coal formation of North Carolina at the next meeting." On 3 April 1856, "Dr. Ebenezer Emmons then gave a very interesting lecture on the coal and coal formation of North Carolina, describing the formation peculiar to that state; illustrating his observations with diagrams. He exhibited many choice fossils from the different Strata; together with several splendid Specimens of the Fossil Flora of that region, which added a rare charm to the entertainment." For reasons unexplained in the Minutes, DeWitt's resignation was announced. The Institute was active in events in late summer, too, when the American Association for the Advancement of Science held its 10th annual meeting. James Hall was elected president of the Association and Ebenezer Emmons lectured on "Permian and Triassic systems of North Carolina." There was no sign of Eights at the prestigious proceedings. Let us see where this brings us.²



Figure 19.1. Vanderheyden Palace. Drawing by James Eights, etched without credit by Benson J. Lossing. One of several drawings used by Lossing in an essay in *Harper's New Monthly Magazine* (volume 14, page 451, 1857) that was rewritten without credit, from a work by Eights. See comments on versions of this drawing in Chapter 20.

On the surface, at least, the next footfall was the appearance in March 1857 in *Harper's New Monthly Magazine* of an anonymous article entitled "Albany Fifty Years Ago," illustrated by 14 wood engravings signed (if attributed at all) by "Lossing-Barritt." While no one would perhaps

want to claim kin to the sadly rewritten, rather override prose of the narrative, it was not long before everyone acknowledged privately that the drawings were engraved without credit from paintings of James Eights. One can easily imagine the gossip that was in the air in Albany.³

Whatever the nature of the fiction promoted by Lossing's narrative, it clearly showed Eights's reconstructions of street scenes in Albany more or less as they were at the turn of the century. For all its extravagant overwriting, with respect to what the drawings purported to show, the text honored the subject. Slightly variant notions of the reliability of identifications of buildings, and so forth, need not concern us here. A transcription of the text is not required, since it is readily available and much copied. The scenes shown will be, as nearly as possible, matched with Eights's own drawings in the Catalogue of his works. At least by 1867, it was noted publicly that the engravings were made from originals by Eights. In 1860, on the other hand, a work published in Albany used the "Lossing-Barritt" scenes without comment.⁴

Now, the usual history of the piece in *Harper's* is one or another variation on the following story. In the Albany Institute of History and Art archives, there is a typescript of an *undated* newspaper clipping without any attribution to the newspaper from which it was copied. I have seen the publisher given as the Albany *Argus*; internally, the letter is claimed to have been sent to the *Times-Union*. The letter itself is not dated; it quotes a letter dated 1886 — which is sometimes cited as date of publication but *most certainly* was not. The letter and its enclosure follow (without external quotation marks).

DEAR OLD ALBANY

The Changes That Time Has Made
Unpublished Letter from Dr. Benson J. Lossing.
Professor Eights the Author of the Article in
Harper's Magazine in 1856 [=1857], Entitled
"Albany, Fifty Years Ago."

"Albany, Fifty Years Ago," was the title of a very interesting article which appeared in *Harper's Magazine* in the 1856-57 volume, pages 451 to 463.

The writer's name was not given, nor that of the delineator [!] of the 14 drawings of scenes in Albany at the beginning of this century with which it was adorned.

Nothing has every [!] appeared in Harper's more interesting to old Albanians, and I was delighted to find when I met at Vassar college, Dr. Benson J. Lossing, the author of "The Field Book of the Revolution," that he also was both the writer and delineator of the article on "Albany, Fifty Years Ago."

He partly promised me that he would at some time give me memorandum of how he came to write it and whence he obtained the material.

It was in answer to this request that he sent me the following letter, and as I think he did it with the expectation that it might be published after he was gone, I send a copy of it to The Times-Union, so many of whose readers are now enjoying the literary treats furnished by the Albany Art and Historical association.

Yours sincerely,
WEST POINT
Cottage City, Mass.

"The Ridge," Dover Plains, N. Y.

Monday Morning, 5:30 o'clock
April 12, 1886

My Dear Friend: On the receipt from you on Saturday of a copy each of the Graphic and the News-Press[,] I felt a twinge of conscience accusing me of seeming neglect of a friend's request made some months ago.

But I silenced the monitor by offering in extenuation the record of memory under the head of "labor" where the words "incessant" and "exhaustive" occur continually. There is no equivalent for the word "leisure."

The recollection of Dr. Eights and my first meeting and brief social interview with him is dimmed by the mists of 30 years, which are laden with the obstructing particles of many interesting events.

The meeting and the interview took place in the early fall of 1856; my study was then in Harper's new Building.

One day James Harper, the senior member of the old firm, came into my room and introduced

to me "Professor Eights, a learned gentleman from Albany, who has something to show you."

This introduction was nothing new to me, as it was a frequent occurrence then, the Harpers being in the habit of referring to me gentlemen offering pictorial and other matter for the magazine for consideration.

As I recall Dr. Eights, he was a rather tall, well proportioned man, apparently of middle age. I found him a very genial and entertaining man. He unrolled a package of drawings and manuscript, scrappy descriptions of the pictures of buildings and other things which marked Albany half a century before. They were mostly water colors, drawings of buildings, made, as I understand the doctor, by himself.

"I offer them for the magazine," he said, "free of charge, for I wish to see the record preserved in a substantial form. I do not care to have my name mentioned in connection with the matter. They said you are just the man to decide upon the value of the materials and to prepare them for the Magazine."

We spent several hours together, I making descriptive notes, from his lips, in addition to those he furnished me in writing. These formed the basis of the article. We parted "excellent friends," for I admire[d] my visitor and he seemed to like me.

This in brief is the genesis of the paper on "Albany, Fifty Years Ago." I embellish[ed] the plain cast-iron facts of history with a little harmless fiction, the perpetration of which has never kept me awake o' nights with the pangs of remorse.

I made the most of the drawing of the pictures on the wood for the engraver with my own hands and received a fair compensation for my labor, artistic and literary.

I presume the illustrated article on the opening of the Hudson river is from your pen. I have read it with special interest, because I came down the river from Albany in that steamer "the Swallow" a week or ten days after that latest opening, April 13, 1843.

Please bear the kindest salutations of us all to your whole household, and believe me to be your sincere friend.

Benson J. Lossing.⁵

So much for the official story. The truth is that Lossing's memory needed some refurbishing by 1886. He was, as he pointed out, referring to something that occurred 30 busy, eventful years before. I have learned of a letter from Eights to Lossing, previously unnoticed, that sheds light upon our subject. The letter reads:

To Benson J Lossing Esqr. New York.

Albany June 15th/56

Dear Sir

Enclosed I send you an Engraving, made from the sepia sketch of the Falls of Tivoli, near this City. It is one among the collection I disposed of to the Harpers.

About nine years since I was applied to, by Vestes [!] Balch, an eminent engraver of your City, for permission to let him exercise his skill by engraving it on steel. This, at the time I consented to do. Some four years after, the original sketch was returned, he being in ill health, was obliged to give it up, as I supposed, never to be completed. A few days ago, I accidentally met him in this City, and he stated to me, that the plate had not been quite finished, but, that it could be in a few days. I then called upon him and obtained the impression I send you. I never had any reason to believe that it had been so far advanced. Consequently I conceived some explanation necessary so that no unpleasant thought should arise [!] should it hereafter meet your eye. I can safely assure you that no impressions have ever been taken from the plate for any other purpose, than the proofs necessarily required for the engraver to complete its execution. Would it not be desirable for the Harpers to purchase this plate for the use of their journal? It can be immediately finished, and procured for a very moderate sum. Alfred B. Street no doubt could easily be induced to furnish the letterpress description, either in prose or Poetry. Make some offer and I will immediately answer you as to the result.

Your letter a few days since was duly received, and the explanations respecting the ships quite wholesome [!]. However, as your mining companies in Wall Street have neglected to arrange their business with me satisfactorily to

my interests, I am very much fearful that I shall be put to a strain in money affairs before I can conclude my commissions here. Therefore you may imagine [!] how much I would be obliged to you, if I could receive some remittance for the said sketch as speedily as convenient. The amount I leave to yourself. If otherwise[,] you may retain them until I see you, or, keep them subject to my order.

The old steam boats mentioned, I have in a measure secured. I have also gathered some very interesting Old Dutch reminiscences, since here, which in due time will be properly developed.

Very Respectfully / Yours &c / James Eights
in care of Richard V. Dewitt
56 State Street Albany.⁶

Several observations are called for here, aside from the obvious one that James Eights was again in Albany — and in need of cash. I think it clear that there had been some monetary considerations involved with regard to the Eights drawings that appeared in *Harper's*. My guess is that while the magazine may have used Eights's material without payment to him, the original drawings were purchased by Lossing for his private collection. This accounts for Eights's obvious concern lest Lossing be offended to see one of them copied: just as it also accounts for the fact that, as we shall see, these very Eights drawings were purchased in our century from the Lossing estate by Messrs. Manning and Cogswell.

We also learn from the letter that the outcome of his sojourn in North Carolina (note the reference to "your mining companies in Wall Street") had been somewhat less than satisfactory. He was also enough in Richard V. DeWitt's good graces to use his office as a staging point. It would seem that the original of his "Tivoli Falls" painting, along with other Albany scenes, went to *Harper's*/Lossing *well previous to June 1856*, the date of this letter. Therefore, that meeting did not take place, as Lossing remembered, in the autumn of 1856. How much earlier it may have been, I cannot guess.

Recall that earlier in the year 1856, Lossing was made a Corresponding Member of the Albany Institute. Is it not likely that Eights had

already met him by then and offered to introduce him to the Albany literati? Note also the Resident Membership of Alfred B. Street — another name whose significance did not fail to impress Eights. And he already knew Vistus Balch, an eminent engraver. Eights certainly met the right people!⁷

An authoritative calendar for the years in which Eights made and promoted his Albany scenes has yet to be fashioned. Clearly, their history considerably antedates the appearance of the Lossing-Barritt copies of early 1857. They were certainly likely all done by the time Eights returned from North Carolina some time in early 1856. He did not do them, surely, while in North Carolina, beginning in winter 1853. Maybe he did work on them during the time of his somewhat obscure residence in Albany in the early 1850s, even as he prepared his popular articles on natural history.

One might suppose that in his period of instability, as documented in letters by R.V. DeWitt and A.E. Williams, already cited, from late 1849 to some time in the early 1850s, he would have accomplished little. Could they have been either prepared or roughed out by then? Or were they in fact worked on at that time as a stabilizing therapy?

Two pieces of his work were dated by Eights himself. "North Pearl & State Street — at & near the Corner — as it was in 1814" was dated 1848 on the back. Albany Institute's "Pearl Street From Steuben Street South" was dated 1850. William L. Lassiter wrote, with minimal documentation, that the "R.H. Pease lithographs...were made between 1847 and 1854 from General Taylor [=Tayler] Cooper's collection of Eights originals." Whether anyone can prove that lithographs of any Eights works were produced as early as 1847, I do not know.⁸

Eights drew up to three versions of the street scenes. The Albany Institute has two sets of drawings, as well as the collection of 14 drawings that Eights conveyed to Lossing from which the *Harper's* article was illustrated. (Note that "The Falls of Tivoli" was not among Eights's drawings copied in the Lossing/Barritt wood engraving, perhaps because it did not fit Lossing's notion of "Old Albany.") It has been

pointed out that there "are some discrepancies between the three versions of the same views. Eights sometimes placed windows and doors in different locations on the same house." Lassiter correctly noticed that this leads to "an unestimated number of original Eights drawings."⁹

A list of owners of significant collections of examples of this "unestimated number of original drawings" is not readily come by. Among early owners of paintings were Stephen Van Rensselaer (not the Patroon of earlier years, who died in 1839, but his son) and General J. Tayler Cooper, as listed by lithographers' credits. R.W.G. Vail, New York State Librarian, prepared an account of the Eights drawings about 1940. He found Ledyard Cogswell, Jr., of Albany, to have a set of 14. Cogswell's collection consisted of the original Lossing collection, since he and James Manning bought them when Lossing's estate was broken up. At Manning's death, Cogswell's wife secured his portion for her husband's collection. Hall Park McCullough owned a set of 12, thought to be duplicates of pictures owned by Cogswell, with an additional four not in the latter's collection. (The McCullough collection came to the Albany Institute from I.H. Vrooman in 1951.) I do not know how to account for a collection of eight Eights Albany scenes loaned for an exhibition in Albany in 1886 by Mrs. Mary Wharton Gibson of New York City. (Can they have been from the Lossing holding?) The provenance of a collection of originals owned by Mrs. William Gorham Rice in 1915 has not been recorded.¹⁰

NOTES

1. AI Minutes, 28 February 1856; Richard Varrick DeWitt, President of the Institute was in the chair.

2. AI Minutes, 13 March, 27 March, 3 April, 5 Jun 1856. While the 10th annual meeting of the AAAS in Albany was marred by unplanned snarls (the opening of the State Geological Hall failed to have timely legislative funding; the opening of Dudley Observatory suffered from delay in arrival of key equipment), it was a gala affair. It was given banner coverage by the Albany *Argus* (see 20-28 August), all participants are listed, numerous lectures cited (and often quoted). Hall's presidential address appeared on the 21st; Emmons's paper was noticed on the 23d.

3. Anon., "Albany fifty years ago" (from material supplied by JE). The use, without credit, of material pur-

chased by *Harper's* was standard practice at the time, however we feel about it now. Benson John Lossing (1813-1891) was a contributing editor for *Harper's* and, by then, an extremely well-known author and wood engraver. William Barritt was a wood engraver, b. ca. 1823. He worked in New York City from 1845 to 1869 — with Lossing after 1847 (Young, *A Dictionary of American Artists*).

4. Gorham A. Worth (d. 1856), *Random Recollections of Albany from 1800 to 1808* (3d ed., with notes by the publisher, Joel Munsell); see frontispiece and plate opposite p. 120. In 1867, in his *Collections of the History of Albany*, Joel Munsell reprinted a revised version of the *Harper's* article, reproducing the plates by electrotype; these engravings, Munsell says, were "mostly from drawings by Mr. James Eights, who has for a long time given much attention to the subject of restoring on canvass [not true: they were all watercolor and pen on paper] the appearance of the dwellings about the city in the early part of this century; copies of which, very skilfully executed by him adorn the walls of many houses." He adds: "A few notes have been appended, either further to illustrate subjects, or to give what others claim to have existed, differing somewhat from the author in the text." (Munsell did not refer to the text as pirated from Eights.) Munsell again used a few of the *Harper's* engravings (or close copies of them) in "Men and things in Albany two centuries ago, and the origin of the Dutch and English churches," an article read before the Albany Institute, 18 April 1876, pp. 37, 39, 51, 52.

5. This typescript is preserved in AI archives. I have been unable to find a newspaper clipping that matches it. Ledyard Cogswell, Jr. (letter to Alfred LeRoy Becker, an Eights relative; in AI archives), 21 February 1945, claimed to have found several years before "a newspaper clipping of 1886" which contained Lossing's letter. Since he misdated the actual date of publication, it can only be guessed whether he saw this typescript or the clipping itself. W.L. Lassiter, in "James Eights and his Albany views," claimed — again, incorrectly — that Lossing's "letter to a friend...was published in the *Albany Argus*, 1886." There is no reason to doubt that "West Point" published the letter after Lossing's death, which occurred 3 June 1891. Since he said he had sent it to the *Times-Union*, that is the logical place to look for it. There is, of course, no reason that it may not have been reprinted in the *Albany Argus*. As for the former newspaper, it was called the *Albany Evening Union* through 16 November 1891 — there was no evidence of such a letter there, from the time of Lossing's death through that date, although a prominent final page of each issue was retained for such newsy letters. Furthermore, I failed to find the letter in the newly named *Times-Union* through 2 December 1892. (The clipping file at the modern *Times-Union* library goes back only into the 1930s, so there is no help there, as I am informed by Richard Matturro.) I have had no luck finding the name of a person who wrote under the name of "West Point."

6. Eights to Lossing, 15 June 1856; Lossing Papers, The Huntington Library, LS 624. See *Guide to American Historical Manuscripts in the Huntington Library* (1979), p.

215. The Lossing Papers do not have other Eights letters, nor is Lossing's letter of 1886 to "West Point" among them. When I wrote to Professor Ian Higginson of the University of Kent in regard to a paper of his that vaguely related to Jeremiah N. Reynolds, I noted my primary interest in James Eights. He thereupon appended to a letter of his (on a quite different matter!) to the Huntington Library a note enquiring whether they had anything on Eights — with the result that the present letter came to my attention. I thank Ian Higginson for his serendipitous help and Christine Fagan and John H. Rhodehamel of the Huntington for their kind assistance.

7. Albany Institute has the Eights pencil, ink and wash on paper drawing of "Tivoli Falls" (Gift of Henry Bland, 1944.4); it also has an engraving (perhaps the one that Eights conveyed to Lossing in the above letter) of the scene by Vistus Balch (source unknown, their U1974.5); see W.G. Balla, "James Eights and the Practical Application of Knowledge" (1991), p. [17]. I find no evidence that Eights's drawing of his "Falls of Tivoli" was ever used in *Harper's*, although retrieval clues are hard to visualize. Vistus Balch (1799-1884) was an engraver and draftsman who worked in various places, from Albany and Utica to New York City; about 1825, he drew on stone a portrait of Samuel L. Mitchill for Imbert, a pioneer lithographer of New York City; see Wm. Young, *A Dictionary of American Artists*, p. 25; J.F. Carr, *Mantle Fielding's Dictionary*, p. 16, 439. Alfred Billings Street (1811-1881), "lawyer, poet, librarian," was another significant friendship of Eights's of which we have no history, other than the reference in the Eights letter; see J.I. Wyer, in *DAB*, and Appletons' *Cyclopaedia of American Biography*, 5: 718; Street was director of the New York State Library from 1848 to 1862 and law librarian until 1868; he published widely in a literary vein and was a popular speaker and poet.

8. For the "North Pearl & State Street" painting, see notes by Anon., 1984, printed on back of AI reproduction in color. Lassiter, "James Eights and his Albany views," p. 360. W.G. Balla, "James Eights and the practical application of knowledge," p. [29], accepts these dates. The R.H. Pease company operated in Albany from 1838 to 1854; it was succeeded by Hoffman, Knickerbocker & Co., a firm that, Lassiter notes, brought out lithographs in 1857-1858. Note reference to the Sintzenich lithographs in the "Catalogue" where a summary account of lithographic reproductions of the Eights paintings will be found.

9. Anon., 1984; Lassiter, "James Eights and his Albany views," p. 360.

10. R.W.G. Vail, undated letter, AI archives; see catalogue of lithographs for information on owners so far as known. Gibson's holding was described in *Albany Bicentennial Loan Exhibition*, pp. 109-111; this collection was listed in detail (but not illustrated), along with various lots loaned by owners of both Eights originals and prints (pp. 81, 87, 88, 123) but Eights was not in the "Works by Albany Artists," pp. 126-130. For the Rice collection, see Anon., 15 December 1915, a newspaper account of an exhibition of Eights material in connection with J.M. Clarke's lecture on Eights.

CATALOGUE OF THE DRAWINGS OF JAMES EIGHTS

This catalogue, expanded from a list of works in the Albany Institute provided by James R. Hobin (1978), aims at a list of identifiable paintings and drawings by James Eights. Natural history and other drawings are included. Some effort has been made to establish uniform titles and, as far as information allows, each is documented. A few scenes will no doubt end up with multiple titles, when illustrations have not been available to guide me. I include information on copies after Eights (or in the style of Eights) and a census of early lithographic and other reproductions.¹

The Catalogue follows: (1) Individual works. (2) Prints, lithographic reproductions, engravings, etc. (3) Views on china. (4) Copies after Eights.

INDIVIDUAL WORKS: AT ALBANY INSTITUTE UNLESS NOTED

ALBANY. See: View of the City of Albany from across the Hudson. (See notes on "View" in Prints.)

ALBANY, ENTRANCE TO THE CITY. By the road from Troy. Water color on paper. 1954.59.78. Bequest of Ledyard Cogswell, Jr. Not in Hobin list. For a woodcut version of this, with description, see Prints.

AQUEDUCT BRIDGE AT LITTLE FALLS. Pen, ink and wash on paper. 3-1/8 x 6 in. Done in 1823. U1976.4.1. Given by JE to AI Mar 1836. One of three vignettes by Eights illustrating fold-

ing panels of Amos Eaton's geological section of the Erie Canal. The others: 1) a similar view of the Aqueduct Bridge at Rochester; and 2) Entrance of the Canal into the Hudson. See also: Erie Canal, Geological Section.

AQUEDUCT BRIDGE AT ROCHESTER. Water color, pencil, ink on paper. 3-1/8 x 6 in. Done in 1823. U1976.4.2. Given by JE to AI, Mar 1836.

BROADWAY AND STATE STREET, NORTH. Water color. 12-13/16 x 20-9/16 in. Hobin.

BRONGNIARTIA TRILOBITOIDES. Water color on paper. 1836.1.1. AI Gift of JE. See: Prints.

DECOLOPODA AUSTRALIS. Original unknown; see Prints.

ENGLISH CHURCH, STATE STREET. Water color. 10-1/2 x 14 in. Hobin.

ENTRANCE TO THE CITY OF ALBANY BY THE ROAD FROM TROY. 1806. See: Albany, Entrance to the City.

ERIE CANAL, GEOLOGICAL SECTION. Done for Amos Eaton's survey of the Canal, 1823. Original not now known, although it was among properties of SPUA and LNH, as of 1 Jun 1824, among "Art & Miscellaneous," "Drawing of the Erie Canal. Geological / Jas Eights." It has been variously reproduced as a folding plate.

FALLS OF TIVOLI. See: Tivoli Falls.

FORT FREDERICK AT ALBANY. 1765. Pencil and water color on paper. Not in Hobin list. AI 1954.59.85. Bequest of Ledyard Cogswell, Jr. It was built in 1676 to replace Fort Orange; located below crest of hill on State Street. See: St. Peter's (or old English Church), for ruins of fort.

GEOLOGICAL SECTIONS, POST-TERTIARY FORMATIONS OF THE CITY OF ALBANY.

Original unknown. See Prints.

GLYPTONOTUS ANTARCTICA. Original unknown. See: Prints.

HODGE'S DOCK. An original with this title was said to have been exhibited by Mrs. C.C. Burton at the Albany Bicentennial Loan Exhibition (1886: 123). Present location unknown. See: Prints, "View of the City of Albany...1836."

LITTLE FALLS. See: Aqueduct Bridge at Little Falls.

MARKET STREET, EAST SIDE, FROM MAIDEN LANE, SOUTH. Albany in 1805. Water color, pen and ink on paper. 12-1/2 x 19-1/4 in. Attributed to JE; unsigned. Lot 5, Schwarz Philadelphia, Philadelphia Collection XLVII, Nov. 1991. From photo, this appears to be an artist's duplicate of a similarly titled one at AI. AI has reproduced this in color but has chopped off a male figure at right, thus leaving only a tiny corner of the Old Dutch Church in distance at right. See next entry.

MARKET STREET, EAST SIDE. (Now Broadway between Maiden Lane and State Street looking south, as it appeared in 1805.) Same scene as previous. Reproduced in color by AI. Water color on paper. 12 x 19-1/4 in. Hobin gave dimensions as 12 x 20-1/8 in. As noted in previous entry, the color reproduction lacks male figure at right (cut off, not simply omitted; I have a b&w reproduction of the AI original with both figures [and more church] showing). This appears to be same as "Market Street, with Market and Old Dutch Church, Looking South, 1805," shown by Mary Wharton Gibson, Albany Bicentennial Loan Exhibition, 1886 (p. 110). Buildings shown: left-hand side — Leonard Gansevoort; dwelling and store of Paul Hockstrasser; a building, lower part occupied by J. Hill, glover, upper part by G. Fairman, engraver; Abram Hun; store, counting house, David and John Blackley; David Fonda; in distance, store of Fonda and Winne; James and Archibald Kane; John Fatin; Jacob and George Manchiu; Dutch Church; right-hand side — John Robinson's corner, in 1886 the Museum; J. & M. Van Schaick; David Walters; Albert Willett;

William Mulroy; Bank of Albany; John Maley; Abraham R. Ten Eyck, bookseller; Douw B. Slingerland; Barent G. Staats; Teunis Van Vechten.

MARKET STREET (NOW BROADWAY), EAST, FROM MAIDEN LANE TO STATE STREET. Water color. 10-9/16 x 19-1/8 in. No figures to right; ox-cart center foreground. Hobin.

MARKET STREET FROM COURT STREET LOOKING NORTH, WITH THE OLD DUTCH CHURCH AND MARKET, 1805. May duplicate another view in Catalogue. Shown by Mary Wharton Gibson, Albany Bicentennial Loan Exhibition, 1886 (p. 110): right-hand side — Thomas P. Gould; dwelling and store, Henry Lansing; Richard Dun & Son; James Daniels; left-hand side — John Spencer, stones and hardware; Stafford & Spencer; John C.P. Dow; James and Walter Clark.

MARKET STREET (NOW BROADWAY), WEST SIDE, FROM MAIDEN LANE TO STEUBEN STREET, as it was about 1809-1810. Water color. 8-1/16 x 17 in. A small color reproduction used in Peggy Byrne, "Albany's first city planner," p. 37, where artist is given as "Erghs." I cannot read all of artist's caption in lower margin. This view was shown by Mary Wharton Gibson, Albany Bicentennial Loan Exhibition, 1886 (p. 110); buildings are: Richard Lush, dwelling and store; adjoining north store, John Brinckerhoof; Richard Dun; Martin Beckman; Talbut, house painter; Barent Bleeker; Gen. John H. Wendell; Stephen Lush, dwelling and office; Dr. Samuel Stringer, dwelling and office; Andrew Brown (house built by Derrick Ten Broeck); Dudley Walsh; Sandrum Lansing, celebrated cake baker; Chancellor John Lansing.

OLD DUTCH CHURCH — ROBINSON CORNER WITH ALBANY BANK.

Water color. 10-3/8 x 17-3/4 in. Hobin. This seems to be same as: "Market Street, West Side, from State Street to Maiden Lane, 1800," shown by Mary Wharton Gibson, Albany Bicentennial Loan Exhibition, 1886 (pp. 109-110): Old Dutch Church; John Robinson's corner, now the Museum; J. & M. Van Schaick; dwelling and store of David Waters, building on south, Hugh Orr's store; Albert Willett; south store, William Phillips, north store, David Newland; William

Mulroy; Bank of Albany; John Maley, merchant. Abraham R. Ten Eyck, bookseller; dwelling and store of Douw B. Slingerland; dwelling and store of Barent G. Staats; Teunis Van Vechten; Market.

OLD DUTCH CHURCH — ROBINSON CORNER (with Albany Bank not showing!). Water color, attributed to JE. Pen and ink on paper. 11 x 18-1/4 in. Sotheby Auction, Jan 1993, Lot 916. Evidently, an artist's (near) duplicate of the previous entry. There are numbers in sky above buildings, with #1 being the usual sliver of a corner of the Old Dutch Church; the other buildings, arrayed across sheet to right, go from Robinson's Corner (#2) to John and Abraham Brinkerall (#9). Oddly, Albany Bank (#7) is listed in caption but no such building is numbered or shown! I was told privately by a Sotheby curator that this lot (with three other paintings by Eights) was from the estate of Dr. Henry Hand Hun (1893-1972), scion of a distinguished Albany family. These paintings had been rather badly treated: trimmed; glued to backing; in some cases, captions seemed separated from main picture and vignettted in the mat margin. I am informed that, after Dr. Hun's death, the house was hastily razed on a weekend by mean-spirited contractors, to fend off a legal order, effective the following week, that would have preserved it for its historical significance. As to Eights paintings held by the Hun family, Ledyard Cogswell, Jr., letter 21 Feb 1945 (AI archives) wrote: "I did see some years ago in Dr. Hun's house, some [of] which might have come down through the family." The paintings probably came to Henry Hand Hun from his distinguished ancestor, Dr. Thomas Hun (d. 23 Jun 1896, aged 86; see A.J. Parker, *Landmarks of Albany County*, pp. 174, 187, 202).

PEARL STREET, WITH DUTCH CHURCH. Albany 1805. Water color. 12 x 20-9/16 in. Hobin.

PEARL STREET AND MAIDEN LANE. Water color. 12-3/4 x 20-1/4 in. Hobin.

PEARL STREET NEAR MAIDEN LANE IN ALBANY. (As it appeared in 1805). AI color print. From water color on paper, 9-3/4 x 13 in. This may be same as another painting in list. It shows, according to Lossing's annotation of his view VI, p. 44, the Woodruff House; his office (half-door, with figure); house built by William

Eights of NYC; home of Thompson the cook; the spire of "the church" shows behind; the Widow Sturtevant; and a tall yellow house belonging to Yates. There is a single male figure at left, a woman and standing child in right center, and a couple at extreme right.

PEARL STREET FROM STEUBEN STREET SOUTH, as it was in 1812. (Dated 1850.) Water color. 10-1/4 x 17-5/8 in. Hobin. This seems to be the painting shown by Mary Wharton Gibson, in Albany Bicentennial Loan Exhibition, 1886 (p. 109), as "Continuation of Pearl street, from near the centre to the corner of Steuben street, 1814." Buildings are: Cornelius Brower's house; Uranian Hall; Dr. William McClellan (afterward Dr. William Bay); other buildings in order: John L. Bleecker, Peter E. Elmendorf; Gerardus Lansing; Writing School; John Andrew; storehouse; in distance, mansion of Harmanus Bleecker.

PEARL STREET, NORTH. Water color. 12-1/4 x 20-1/4 in. Hobin.

PEARL STREET, NORTH. Albany, 1800. Water color. 10-1/2 x 18-1/2 in. Hobin.

PEARL STREET, NORTH. Pemberton Corner. A preliminary sketch by JE. AI; used by J.J. McEneny, *Albany, Capital City on the Hudson*, p. 33. House on corner was constructed in 1710 (date in large numerals at second-story level). (Present-day Brewster Building [Albany Business College].)

PEARL STREET, NORTH, FROM THE CENTER OF STEUBEN STREET TO FOX STREET. Water color on paper. AI 1954.59.64. Bequest of Ledyard Cogswell, Jr. (Balla, 1991, p. [23]). This probably duplicates one of Hobin's entries.

PEARL STREET, NORTH — WEST SIDE FROM CANAL STREET NORTH. Water color. 10-1/4 x 18 in. Hobin.

PEARL STREET, NORTH — WESTERLO HOUSE / PRUYN HOUSE. Water color. 12-7/8 x 18-3/4 in. Hobin.

PEARL STREET, NORTH, AND STATE STREET, as it was in 1814. JE, from his original sketches. 11-1/4 x 15-3/8 in. (Hobin); in color reproduction, said to be 11-1/8 x 15-1/4 in. On back inscribed by artist: "Drawn by Jas Eights in 1849 from original sketches made by himself." Evidently an artist's duplicate was offered in

Sotheby's Auction, Jan 1993, Lot 915, as: Webster's Corner, Philip Livingston's Home and Other Old Albany Residences. Attrib. to JE. A hasty water color over pen, on paper. 13 x 20 in. Numbers over buildings, explanations vignetted in bottom mat margin. There is no name plate above door of Webster building. Oddly, the same view, but with a better-drawn tree (the lithographer's art?), and a horseman and several pedestrians, entitled "View in Albany — House of the First Dutch Governor," was lithographed by Sintzenich and printed by J.H. Hall from an original belonging to General Stephen Van Rensselaer (d. 1868). The color reproduction by AI has valuable notes by Anon., 1984. This view was shown by Mary Wharton Gibson in the Albany Bicentennial Loan Exhibition in 1886 (p. 109).

PEARL STREET, NORTH, AND THE NORTH DUTCH CHURCH, FROM THE CORNER OF COLUMBIA STREET LOOKING NORTH. Water color. 15-7/16 x 19-1/8 in. Hobin. This was shown by Mary Wharton Gibson in the Albany Bicentennial Loan Exhibition in 1886 (p. 109). The following buildings are identified, from left: Catharine Fisher; Skerrett, blacksmith; Grocery; School kept by James Crabb; Occupant unknown; William McGwiky, chocolate manufacturer for James Caldwell; James Brown (formerly Cornelius Groesbeeck); North Dutch Church; corner opposite church, Bockins, baker.

RICHMAN'S DWELLING. See: State Street, South Side, above Pearl Street, 1805. Also called: Stevenson and Wendell Houses, q.v.

ROCHESTER. See: Aqueduct Bridge at Rochester.

ST. PETER'S (OR OLD ENGLISH) CHURCH. Near intersection of State and Barrack (now Chapel) Streets, Albany, 1800. Water color on paper. 8-1/4 x 11-3/8 in. Hobin. AI 1954.59.74. Bequest of Ledyard Cogswell, Jr. Also, AI color reproduction. The English church, erected in middle of upper State Street in 1715, was near Fort Frederick (shown in ruins in back left). At right is red brick residence of Mayor Philip S. Van Rensselaer. I have a b&w picture of this that shows artist's caption at bottom, not present in color reproduction.

ST. PETER'S CHURCH, STATE STREET. Water color. 10 x 17-1/2 in. Has newspaper backing dated about 1900. Hobin. Presumably an artist's duplicate of previous entry but note different dimensions.

SALAMANDRA TIGRINA. Water color, ca 2-3/4 x 4-3/4 in. Museum of Science, Boston. Inscribed in front by JE: "Salamandra Tigrina"; on back, in his hand: "from the banks of the Mohawk River, N.Y. / James / Eights." I thank Carolyn Kirdahy for bringing this drawing to my attention. A date of 1833-1835 may be safely assigned to this work.

SCHUYLER HOUSE, PEARL AND STATE STREETS. 1798. Water color. 13-1/2 x 10-7/8 in. Hobin.

STATE HOUSE — PEARL AND STATE STREETS. Water color. 11 x 12-1/2 in. Hobin.

STATE STREET IN ALBANY AS IT WAS IN 1805. Size given as 11-7/8 x 19 in. Also, AI Color print. Reproduced by J.J. McEneny, *Albany Capital City on the Hudson*, p. 37. Perhaps same as "State and Pearl, 1805"? See colored lithograph, "State Street, Albany, 1805." Shown by Mary Wharton Gibson, Albany Bicentennial Loan Exhibition, 1886 (pp. 110-111), where it was called "State street, looking east from the hill, 1805": Right hand side, from edge inward — James Chestney, chair manufacturer; carpenter shop; carpenter shop; George Merchant; Mr. Green; William Van Rensselaer; distant yellow house, Governor John Tayler's mansion; building beyond church, George Manchius, druggist and post office; left hand side (from left margin) — part of St. Peter's Church; Phillip S. Van Rensselaer, Mayor; Charles R. Webster; George Webster; C.R. and G. Webster bookstore and printing office; Balt. Lydius; William Pitt Beers, dwelling and law office; Occupant unknown; Joseph Sharp, mulatto barber; State Bank; Whiting and Watson (afterwards E.E. Backus); Star and Sheldon; wine store; George Pearson; Samuel Dexter, druggist, store and dwelling; Tontine Coffee House, kept by Matthew Gregory; Webb and Drummer; Arant Vedder; Occupant unknown; John Barry; Samuel Hill; John McGaffin; beyond the church, James and Archibald Kane; Old Dutch Church.

STATE STREET, NORTH SIDE, BELOW NORTH PEARL, TO EAST. 1805. Perhaps one of the other views here. See illustrations in Wagar Coffee House place-mats; J.J. McEneny, *Albany Capital City on the Hudson*, p. 39; and Helen W. Reynolds, *Dutch Houses*, "The North Side of State Street," which she identifies with the "Bogardus-Ten Broeck House" (p. 64, plate 13). House at left is that of Domine Schaets. The view follows State Street to corner east of James Street. At the corner of James and State streets, east, was the Bogardus-Ten Broeck House. Between these extremes was the building of the State Bank of Albany, built in 1806. The State Bank was designed by Philip Hooker; its facade was salvaged for the entrance of the modern bank building (now Fleet Bank).

STATE STREET, NORTH SIDE, FROM PEARL STREET TO MARKET STREET. Albany in 1806. Water color. 9-5/8 x 13-1/16 in. Hobin.

STATE STREET, SOUTH, ABOVE PEARL STREET, 1805. Also called: Richman's Dwelling; and Stevenson and Wendell Houses, 1849. See: AI 1954.59.76 and 1954.59.71. Bequest of Ledyard Cogswell, Jr.

STATE AND COURT STREET. Water color. 11-3/8 x 18-1/2 in. Hobin.

STATE AND PEARL STREET. 1805. Water color. 12-5/8 x 19-3/4 in. Hobin.

STATE AND PEARL STREET. 1805. Water color. Mat opening, 9 x 12 in. AI 1940X-617.1. Hobin.

STATE AND NORTH PEARL STREET. Water color. 11 x 15-1/2 in. Hobin.

STEVENSON AND WENDELL HOUSES. State Street, South Side, Above Pearl Street, 1805. Also, "The Richman's House," etc. Georgian style house built in 1780 by Dr. John Stevenson, contrasted with the next-door Dutch-style house of Harman Wendell (1716). Both were demolished in 1841; J.J. McEneny, *Albany Capital City on the Hudson*, p. 34. They were illustrated in Lossing as simply "The Stevenson House," p. 454. They were redrawn from an older reproduction (not Eights) by Joel Munsell, to show them separately, in his reprint of Lossing, 1867, p. 15.

STATE STREET AND BROADWAY ABOUT 1805. I cannot place this among others listed. Illustrated by Codman Hislop, *Albany, Dutch,*

English, and American, p. 268. He used it when it was in the private collection of Ledyard Cogswell, Jr. There is a prominent view of the Old Dutch church at right, with two small human figures in left center.

TIVOLI FALLS. Sepia ink on paper. Title: "The Falls of Tivoli near Albany." Matted, ca 6 x 8 in. Not signed. Hobin. AI 1944.4. Gift of Henry Bland. Tivoli Falls was on the estate of Stephen Van Rensselaer. See, in text: JE to Lossing Jun 1856.

UNTITLED HOUSE AND CHURCH. Water color. 9-5/8 x 14 in. Hobin.

VANDERHEYDEN PALACE. Water color. 9-1/4 x 13-1/4 in. Hobin. A presumed artist's duplicate was offered by Sotheby's Auction, Jan 1993, part of Lot 914. Attributed to Eights. Said to be from estate of Dr. Hun (see Old Dutch Church); called "Jacob Vanderheyden Palace." Water color, pen and ink on paper. Caption, in what appears JE's hand, vignettied into lower margin of mat: "Jacob Vanderheyden Palace 1805. Erected by Johannes Beekman one ov [!] the old Dutch settlers of Albany in 1725." It shows a front view of building with three wind-blown Lombardy poplar trees in front. The Sotheby offering is a water color, whatever its history. Now, Helen W. Reynolds in *Dutch Houses in the Hudson Valley Before 1776*, pp. 63-64, plate 12 (p. 129), refers to her plate as reproducing a woodcut; but she pretty clearly shows a photographic reproduction of a painting very similar, if not identical, to the Sotheby water color. In addition, both the Lossing and Munsell woodcuts showing this frontal view of the building display substantial differences from the Reynolds reproduction and Sotheby painting. In both water colors, there are no figures at right while there is one figure at left, peering into the street from a Dutch half-door; there is an oval object in left foreground that is missing in both Lossing and Munsell. Munsell shows no such door or figure at left and there are *two* figures at right on the street. Lossing, in contrast, shows a scene similar to Munsell but with *three* figures at right. The Wilkinson and Sotheby versions show much clearer, finer detail of architecture and both street-facing gables (not just the one to the right) have weathervanes. Note that Reynolds

does not specifically credit the picture to Eights. In the Sintzenich/Hall lithograph, "View of Albany — House of the First Dutch Governor," and the original of "Pearl Street, North, and State Street, 1814," there is, respectively, no tree at all and one tree. It is of interest that a variation of this three-tree version was reproduced, without any credit to Eights, as an engraving by Pease ("Pease Sc.") by Joel Munsell, in *Annals of Albany*, 1: 278 and plate opposite, in 1850. (Munsell used it, instead of Lossing's plate, when he reprinted the Lossing piracy in 1867, p. 8). But for the painting, attributed to JE by Sotheby's and its use by Lossing (where it clearly came from JE), one might wonder if it were really an Eights work, since Munsell did not restrict his views of historic houses entirely to Eights. See Prints.

VIEW OF THE CITY OF ALBANY, FROM THE OPPOSITE SIDE OF THE HUDSON RIVER. Original unknown. See Prints.

WEBSTER'S CORNER, PHILIP LIVINGSTON'S HOME AND OTHER OLD ALBANY RESIDENCES. Sotheby Auction, Jan. 1993, Lot 915. See: North Pearl and State Street as it was in 1814.

WENDELL AND STEVENSON HOUSES. Water color. 7-7/16 x 9-7/8 in. Hobin. See: The Rich Man's House; Stevenson House.

WIDOW VISSCHER'S HOUSE, COLUMBIA AND PEARL STREETS. Water color on paper. 10-1/8 x 13-3/8 in. Hobin. AI 1954.59.77. Bequest of Ledyard Cogswell, Jr. House was at northeast corner of Pearl and Columbia. See: Widow Visscher's Lodging House, Sotheby's Auction, Jan 1993, Part of Lot 914. Water color, pen and ink on paper. Attributed to JE. 6-1/4 x 10 in. Caption vignettted into mat margin: "Widow Visscher's Lodging House / Corner Pearl & Columbia St. Albany Built 1710." No. 1 is house; No. 2, Fox Creek (which does not show — to left side, behind house?). Joel Munsell (reprinting of Lossing, 1867, p. 30) claimed, apparently with authority, that this house was in fact that of Col. Jacob Lansing, not the Widow Visscher; her house was "on the north-west corner of Canal and Pearl streets. She afterwards removed to the old yellow house in Columbia street, nearly opposite James, where she died."

PRINTS: LITHOGRAPHS, EARLY ENGRAVINGS AND THE LOSSING WOOD ENGRAVINGS

Four firms and publishers have so far been credited with producing prints, either black and white or tinted, in lithography during Eights's lifetime. All of these require further documentation. I do not know when the Webster & Skinner and Eugene Sintzenich lithographs were issued (see "State and Pearl Streets"; "View in Albany — House of First Dutch Governor"; "A View in Market Street (now Broad-Way).") The earliest known lithographs were done by the firm of Richard H. Pease, to which Lassiter gives dates between 1847 and 1854. That firm was succeeded by Hoffmann, Knickerbocker & Co., which appears in the Albany Directory only during 1857-1858. (Helen Deák [1976, 1981] spells it both Hofmann and Hoffmann, and shows [1976] a lithograph that seems actually to spell it Hofmann.) What is presumed an Eights drawing of the Vanderheyden Palace was used by Munsell in 1850 (see notes under that title in Catalogue, above, and below).²

ALBANY GEOLOGY. GEOLOGICAL SECTIONS, POST-TERTIARY FORMATIONS OF THE CITY OF ALBANY. Original unknown; plate used in JE's essay on Albany clays, 1852. Signed "Jas. Eights, Del."; plate prepared by "Lith. of Rich^d H. Pease, Albany."

ALBANY, NORTHERN ENTRANCE TO, 1805. Lossing (1857: 463). Edge of Van Rensselaer manor-house is shown at left; on right, under and beyond a large tree, a store-house used by General Stephen Van Rensselaer as office.

ALBANY, VIEW IN — HOUSE OF THE FIRST DUTCH GOVERNOR. Printed by J.H. Hall lithographic firm, drawn on stone by Eugene Sintzenich, from an original in possession of Gen. Stephen Van Rensselaer (1789-1868, son of the old Patroon); Sintzenich also published it from No. 350 Broad-Way, Albany. I have tinted copy. For other versions of this, see Catalog, "North Pearl and State Street as It Was in 1814" and "Webster's Corner." For Lossing's wood engraving (1857), see "North Pearl and State Streets."

BRONGNIARTIA TRILOBITOIDES. Plate prepared by "Pendleton's Lith." It illustrated JE's 1833 paper.

CHURCH AND MARKET STREETS. R.H. Pease, lithographic firm, no lithographer given. AI has two tinted, one b&w. Hobin. I have tinted copy, framed. Presumably made from a Pease lithograph, Wagar Coffee House published place-mat versions of this under title of "Court Street (now Broadway) just south of State Street about 1805." The Old Dutch church was build 1715, torn down 1805-1806.

CHURCH AND MARKET STREETS. Lithograph of Hoffman, Knickerbocker & Co., Albany. 11-3/4 x 19 in. AI has one tinted, two b&w. Hobin. Stokes and Haskell (*American Historical Prints*, p. 49) assign the date of 1857-1858 to this; they give the owner of the Eights original as "General O. Taylor Cooper"; his name was properly J. Tayler Cooper, according to credits on both Pease and Hoffmann and Knickerbocker lithographs. He was certainly John Tayler Cooper, Brigadier General, Third Brigade Horse Artillery, in the State military establishment in the early to middle 1830s; he commanded the Albany brigade in which Eights was Hospital Surgeon (see Albany Directories, 1831-1836). Gloria Gilda Deák, *Picturing America*, p. 165 (Fig. 249, in color), and *American Views*, pp. 44-45, has original owner as "O. Tayler Cooper." The two-story Dutch building on the right was the store of Henry Lansing — he dealt in dry goods and teas, selling most of it directly from his open half-door, so that customers were not allowed inside the store. This work was noticed by Harry T. Peters, *America On Stone*, p. 170, as published by "Knickerbocker & Co."; his information on Eights in 1931 was skimpy.

DECOLOPODA AUTRALIS. Original lost. JE's drawing was aquatinted by G.G. Smith (presumably in Boston) for his 1835 publication.

ERIE CANAL, GEOLOGICAL SECTION. Used in various publications, all concerned with the Canal or with Amos Eaton's survey of the Canal or, finally, with Eaton's publications on geological nomenclature. Original lost; see Catalogue, above. Eights's vignettes of the Entrance, the Aqueduct Bridges at Little Falls and Rochester are listed as separate works.

GLYPTONOTUS ANTARCTICA. JE's paper, 1852. Plate lacks information on either artist or preparator but was engraved by Albany Institute member John E. Gavit.

VIEW IN MARKET STREET (NOW BROADWAY) ALBANY, A.D. 1805. AI, one tinted, one b&w (torn). Hobin. "From an original drawing in the possession of Gen^l Stephen Van Rensselaer" (1789-1868). On stone by E. Sintzenich, printed by J.H. Hall, published by Sintzenich, No. 350 Broad-Way, Albany. I have tinted copy, framed. Presumably, Wagar's Coffee House placemats of this scene were made from this lithograph. Much the same scene shows in the next entry.

MARKET STREET. Lossing (1857: 459). East side, from State Street to Maiden Lane, looking down street to the Old Dutch Church. Buildings (from left to center): Paul Hochstrasser; Maiden Lane; house and store of General Peter Gansevoort; Hill (glover), with Fairman, engraver, above; the Rev. Mr. Bassett; Barent and John B. Bleeker (partly concealed by Market, in center of street); Ford's carpetstore; then, looming over all, the mansion of David Fonda, etc.; Old Dutch Church in distance. Munsell (1867, p. 24) held Bassett at most a temporary resident and made other slight changes in names.

MARKET STREET, FROM COURT STREET. (Entitled "Court and Market Streets.") Lossing (1857: 460). We now stand in Court Street, south of State Street, and look northward up Market Street. There is a near view of Old Dutch Church in left rear, a wagonload of hay pulled by two horses in seen in foreground. Houses on left: John Stafford; Stafford and Spencer; John J.P. Douw; the gable-fronted Douw's Building, occupied by James and Walter Clarke; Daniels; Richard Deane and Son; Henry Lansing (who sold goods from his door); Thomas R. Gould. (Munsell, p. 26, along with minor changes, has Richard Dunn, not Deane.)

MARKET STREET, NOW BROADWAY (1). Lossing (1857: 461). From the Old Dutch Church, northward. Only the slightest corner of the Church is shown; State Street; Robinson's corner; Myndert and John Van Schaick; David Waters; David Newland; Elbert Willett; Albany Bank (inc. 1792); John Maley; Abraham Ten Eyck's

bookstore; Douw B. Slingerland; Barent G. Staats; small house, Teunis Van Vechten; Maiden Lane; Mrs. Douglas (right), John and Abraham Brinkerhoff. The next scene continues Market Street to north. (Munsell, p. 29, makes it Peter Douw, not Douw B. Slingerland.)

MARKET STREET, NOW BROADWAY (2). Lossing (1857: 462). First, the last house mentioned in previous view. Then: Peter Annelly; two houses with unknown occupants; Barent Bleeker; Maj. John H. Wendell; Stephen Lush; a three-story house, Dr. Samuel Stringer; Stringer's office; an alley; Andrew Brower; Dudley Walsh; at corner of Steuben, Sanders Lansing, celebrated for his "Dead Cakes"; Steuben Street; Chancellor Lansing (Mayor, 1786-1790). (Along with minor changes, Munsell, pp. 29, 30, has not Peter Annelly but Lawson Annesley; John H. Wendell was a Revolutionary War general.)

PEARL STREET, NORTH, AND STATE STREETS. Lossing (1857: 455). The familiar view of Webster's corner, with spire of church behind, the so-called Lydius house (originally built in 1652 for Domine Gideon Schaets) and house of William Pitt Beers at right. See, above, "View in Albany — House of First Dutch Governor." See Munsell, p. 17, for a footnote.

PEARL STREET, NORTH, FROM MAIDEN LANE, NORTHWARD. Lossing (1857: 456). Woodruff house, office; William Eights; on through Uranian Hall, painted lead color (looks blue in color reproductions). The street is continued in the following illustration. (Munsell, p. 20, has a long footnote in regard to the William Eights house.)

PEARL STREET, NORTH. Lossing (1857: 457). Houses of: William McClellan, John B. Romeyn, Nicholas Bleeker, Peter Elmendorf, small Schoolhouse, John Andrews. Continued in next view.

PEARL STREET, NORTH. Lossing (1857: 458). A continuation of west side of North Pearl Street, from Fox (now Canal) Street to Patroon Street. At left is part of Vandeberg mansion; other buildings: John Bantum; Irish schoolmaster Crabbe; tool house of church; in distance to left rear, country seat of General Tenbroeck; Saugher, chocolate manufacturer; sexton of church. (Munsell, pp. 22-23, silently corrected

spellings of Bantum, Ten Broeck and McGourghey (chocolate manufacturer). Then, the most elegant two-steeped North Dutch Reformed Church (1798). Fox Creek formerly flowed across the street in the middle of this view (it now flows under it). Bocking, cake maker, lived and worked across street from church.

SAINT PETER'S CHURCH ("The English Church"). Lossing (1857: 453). Erected in 1715 in middle of State Street, opposite Barrack (now Chapel) Street. Ruins of Fort Frederick in back. (Munsell, p. 13, offers a quite different illustration (not by JE), showing the church in 1790, with Fort in place.)

STATE STREET, ALBANY. Lithograph. Firm of R.H. Pease, 11-7/8 x 19-1/8 in. AI has two tinted copies. Hobin. I have colored copy of this published by AI. "From original sketches in the possession of Gen. J. Tayler Cooper, by Jas. Eights." AI describes the scene as "View looking east down State Street. The Old Dutch Church, removed in 1806, appears at the foot of the street. St. Peter's, the English church, stood at the top, near the cart./The large house at the left is that of Philip S. Van Rensselaer, twice Mayor of Albany. Below it is Elm Tree Corner where, in the former Livingston house, was the shop of C.R. and George Webster, printers and publishers."

STATE STREET, ALBANY. Lithograph. Firm of R.H. Pease. AI has two copies, both b&w. Hobin.

STATE STREET, ALBANY, 1805. Lithograph, 11-3/4 x 19-1/8 in. Lithograph of Hoffmann, Knickerbocker & Co., Albany. AI has one copy tinted, one b&w. Hobin. (Hobin listed a damaged copy of this title, with lithographer, in some manner different from the others.) I have tinted original print, framed. This was from an original in the possession of J. Tayler Cooper. It was reproduced by Stokes and Haskell, *American Historical Prints*, p. 49, Plate 37.

STATE STREET, LOOKING EAST. Lossing (1857: 452). A slight variant on other views looking down State Street, with the Old Dutch Church in distance, the corner of St. Peter's Church at near left, sawyers of the carpenter shop working at right; with a rider and horse in

left front instead of a loaded haycart. (Munsell, p. 12.)

STATE AND PEARL STREETS, ALBANY. Lithograph, 11 x 15-7/8 in. No lithographer's mark. AI has four copies, all b&w. Hobin.

STATE AND PEARL STREETS. Lithograph, 11 x 15-7/8 in. Published by Webster & Skinner's Bookstore (lower left). AI has one tinted, one b&w. Hobin.

STEVENSON HOUSE. Lossing (1857: 454). Actually shows both Stevenson ("The Rich Man's House") (1780) and the Dutch-style house of Harman Wendell (1716). Both razed 1841. (Munsell, p. 15, shows the houses in separate cuts, neither by JE.)

TIVOLI FALLS. "Falls of Tivoli." Engraved by Vistus Balch (1799-1884). AI U1974.5. Provenance of this at AI is "unknown," but see letter quoted in text from JE to B.J. Lossing, 1856 and note on this subject, main Catalogue.

VANDERHEYDEN PALACE. Evidently from a drawing by JE, since it was used in Lossing's pirated views (p. 451), with three wind-blown Lombardy poplar trees in front. This view was used by Joel Munsell in 1850 (see notes, this title, Catalogue), although without attribution. The same view was reproduced by Lossing, 1857, p. 451; when Munsell reprinted the Lossing piracy in 1867, p. 18, he reused his own earlier wood engraving, although without credit to Pease as engraver. Wagar Coffee House placemats reproduce one or another drawing of the same view of the house; Wagar may have used what Balla (1991: [29]) calls a copy painted by an untrained artist?

VIEW OF THE CITY OF ALBANY, FROM THE OPPOSITE SIDE OF THE HUDSON RIVER. Wood engraving, a folding plate illustrating James Eights's *Reminiscences of the City of Albany* (1836). Original unknown, unless it was "Hodge's Dock," "the present steamboat landing," an original painting by Eights (now lost), loaned to the Albany Bicentennial Loan Exhibition (1886), p. 123 (item 213), by Mrs. C.C. Burton. See also a letter of 1903 from William Eights Burton in possession of Mrs. Mildred Carswell Sharpe: "James Eights painted a picture of the old dock on the Hudson River at the foot of Broadway with sloops and schooners landing

their freight."³

WIDOW VISSCHER'S. Lossing (1857: 463). Northeast corner of Pearl and Columbia streets. See notes with painting, Catalogue.

EIGHTS VIEWS ON STAFFORDSHIRE CHINA

The chief authority in this field is Ellouise Baker Larsen, *American Historical Views on Staffordshire China* (rev. ed., 1950). Several examples are known and it is likely that more will turn up. In this edition of her work, Larsen credited the views to Eights, partly at least because of information given her by Ledyard Cogswell, Jr. As will be seen, a few pieces of this ware are owned by the Albany Institute and others appear at auction now and then. Doubtless, many ambiguities remain to be threshed out.

ENTRANCE OF THE ERIE CANAL INTO THE HUDSON AT ALBANY. Enoch Wood & Sons plates (10, 6 in). Dark blue. Pitchers in three sizes (9-1/2, 9, 8-1/4 in) exist with "View of the Aqueduct at Little Falls" on reverse. Pitchers in two sizes (9, 6-1/4 in) and creamer (3-1/2 in) exist with "Aqueduct Bridge at Rochester" on reverse. The transfer print on china was no doubt made not from the original but from the engraving in the Cadwallader D. Colden memoir (1825) on the completion of the Erie Canal. Larsen describes the scene: right, on canal, "one of the famous canal boats, two cabins. Center, freight canalboat. Beyond, on bank near arches in center, stands warehouse of Ebenezer Wilson. Middle Distance: Hudson flows across picture right to left, joined by canal at center. Background: Right, large manor house of Van Rensselaer, torn down about 1890. Small house near, called 'Tea House.' Left, home of Stephen Van Rensselaer, afterward St. Peter's Hospital."⁴

ENTRANCE OF THE ERIE CANAL INTO THE HUDSON AT ALBANY. Unattributed as to maker. Pitchers (5-3/4, 5-1/4 in). Pitcher (2)(11 in), one white with sepia print, one with black print. The view is under spout; portraits (Jefferson, Lafayette) on side panels. All have

half-inch maroon band. Albany Institute has a pitcher in sepia, brown rim, by R. Stevenson.⁵

VIEW OF THE AQUEDUCT BRIDGE AT LITTLE FALLS. Enoch Wood & Sons. Dark blue. Plates (9, 8 in). Soup plates (10-1/2, 10 in). Washbowls (13, 12 in), view on interior. Pitchers (9-1/2, 9, 8-1/4, 7 in); on reverse, "Aqueduct Bridge at Rochester." Pitchers (9-1/2, 9, 8-1/4 in); reverse, "Entrance of the Erie Canal into the Hudson at Albany."⁶

VIEW OF THE AQUEDUCT BRIDGE AT LITTLE FALLS. Maker unattributed. Pitcher (6-1/4 in); white, black print; half-inch maroon band; under spout, Washington.⁷

AQUEDUCT BRIDGE AT ROCHESTER. Enoch Wood & Sons. Dark blue. Plates, (7-1/2, 5-1/2 in). Pitchers (9, 6-1/2 in). Creamer (3-1/2 in). Pitchers (9-1/2, 9, 8-1/4, 7 in); reverse, "View of the Aqueduct Bridge at Little Falls."⁸

MARKET STREET, stylized. Wedgwood, Etruria, Earthenware plate. Blue. 1904.⁹

MEDALLION PORTRAIT SERIES. Ralph Stevenson & Williams plates (sizes given for a lot of four, 10-1/4 to 8-1/8 in). One depicts "View of Aqueduct Bridge at Little Falls," with two portrait medallions of Jefferson and Governor Clinton; one shows "Entrance of the Canal into the Hudson at Albany," with four portrait medallions depicting Jefferson, President Washington, Lafayette, and Governor Clinton, all titled in front. Colors not given. Both medallion portraits and Canal scenes are in borders of plates; central figure shows something else.¹⁰

ST. PETER'S ANGLICAN CHURCH. Wedgwood, Etruria, earthenware pitcher. ca 1910. Blue on white. This shows part of the scene called in main Catalog, "St. Peter's (or Old English) Church," near intersection of State and Barrack (now Chapel) streets.¹¹

COPIES, MIMICS, AND FALSE ATTRIBUTIONS

In this catch-all category, I list works that make some effort to duplicate a work by James Eights, those that are merely "in the style of" Eights, and a few examples actually taken to be by Eights when they are not. The last type can be examples of either other category. At a time

when Eights's scenes were popular and mechanical color reproduction was unknown, it is quite understandable that some people made careful copies of his works, whether for sale or not. They certainly need not be accused of falsifying the works. In the same way, a bread-and-butter artist is not being dishonest if he produces a work that shows an Albany scene, purporting to be early, with an abundance of Dutch-style houses with gabled ends oriented to the street. While it is not difficult for the former, if good, to be fobbed off on the unwary as originals, it seems to me that the latter pose a threat only if purchasers show no caution at all.

COPIES OF EIGHTS ORIGINALS OR PRINTS

UNKNOWN ARTIST. Balla lists a pen, ink and water color on paper copy of "Vanderheyden Palace" (the front view with three Lombardy poplars in front) "by an untrained artist."¹²

PARKHURST, P.A. Listed by Hobin as copier of an Eights work (subject not identified) in ink.

WRIGHTSON, Anna. "Market Street," and "Market Street, North Side of, 1800." Did she copy others? Oil on canvas. The latter, at least, about 10 x 16 in.¹³

VIEWS AFTER EIGHTS

LITHGOW, David. "State Bank of Albany and State Street, (north side) as it appeared about 1806-1810," mural, State Bank of Albany (now Fleet Bank), 1934. Allison P. Bennett, in *The People's Choice*, incorrectly referred to this as "watercolor on paper, 1850, James Eights. Courtesy, State Bank of Albany"; she labeled it as showing Albany in 1804.¹⁴

SCHRODT, Paul. Scale models of buildings, after James Eights. "West Side of Pearl Street, between State and Steuben Streets, about 1800." This series of models, with identification of owners, was shown in a photograph by Codman Hislop (*Albany, Dutch, English, and American*, pp. 230-231).

NOTES

1. I am most grateful to librarians and curators at the Albany Institute of History and Art for their help. Librarian James R. Hobin (letter 17 Feb 1978) kindly set me on my way with a substantial list of Eights drawings and lithographs. I have added to it what I later learned.

2. Early reproductions of Eights's works as wood engravings appeared in the pirated article, "Albany fifty years ago," 1857, that consisted of text rewritten by B.J. Lossing, art work signed only by Lossing and William Barritt; a couple of these engravings, again with no credit to JE, were reproduced by G.A. Worth (d. 1856), *Random Recollections of Albany from 1800 to 1808*, frontispiece and opp. p. 120; Joel Munsell reproduced the Lossing article (with notes and corrections, and some illustrations that differ from Lossing's) in 1867, with a note, p. [9], that Lossing derived his "skilfully executed" views "from drawings by Mr. James Eights." A few of these were used in Munsell's "Men and things in Albany two centuries ago" (1879), unfortunately without any mention of sources, for one would like to know origins of some of the figures. W.L. Lassiter, "James Eights and his Albany views," alluded to the contribution of Ledyard Cogswell, Jr., as a collector of both prints and original drawings (notably, the collection of 14 paintings that Lossing got from Eights and used for the 1857 article); there have been newspaper articles about the Cogswell collection; see Anon., 25 Sep 1927, "Old Albany prints"; and Anon., 5 Aug 1950, "Birthday gift started Ledyard Cogswell, Jr., private collection of prints of early Albany." Alice Kenney, "The transformation of the Albany Patricians, 1778-1860," uses JE's Albany views, pp. 154, 155, 165.

3. William Eights Burton was son of William Burton (b. 1809), a son of Catharine Eights and John Burton. William was a cousin of JE; for portrait, see G.R. Howell and J. Tenney, *Bi-centennial History of the County of Albany*, p. 946. I cannot with certainty identify a Mrs. C.C. Burton among the Eights branch of the Burtons, unless the name was an error for Charles E., youngest son of John and Catharine Burton.

4. E.B. Larsen, *American Historical Views on Staffordshire China*, pp. 24-25, fig. 42, plate. While Larsen thought the original water color of the "Entrance" was at the Albany Institute, as indeed it once had been, Ledyard Cogswell, Jr., could not find it in 1947, nor has it reappeared since; originals of the other two Erie Canal views are there. See letter of Cogswell to E.B. Larsen, 23 Jan 1947. For examples offered for sale, see: Sotheby's Arcade Auction, Sale 1419, Jan 1993. Lot 718 consisted of three Enoch Wood & Sons plates (10-1/4 to 7-3/8 in), no color given; one each "Aqueduct Bridge at Rochester," "View of the Aqueduct Bridge at Little Falls" and "Entrance of the Erie Canal into the Hudson at Albany," all titled in front.

5. Larsen, p. 258; AI Purchase 1973.32; see Balla, 1991, p. [17].

6. Larsen, p. 25, fig. 43, pitcher; soup plates ("bowls") are in AI (gift of C. Otto von Kienbusch, 1975.30.11); see Balla, 1991: [17]; illustrated by J.J. McEneny, *Albany Capital City on the Hudson*, p. 38. See note 5, on Sotheby's auction.

7. Larsen, p. 272.

8. Larsen, pp. 25-26, fig. 44, pitcher. AI has plate, Source unknown, X1940.708.2, see Balla, 1991: [17]. See Sotheby's auction, note 5.

9. This is the familiar scene showing the open market on Market Street (now Broadway); AI, Gift of Albany Chamber of Commerce; commissioned by them for their Second Annual Dinner, inscribed on front. X1940.708.2; see Balla, 1991: [30].

10. Sotheby's Arcade Auctions, Sale 1419, Jan 1993, Lot 727. They suggest a date of about 1815!

11. AI, Purchase, 1983.6. One of many pieces commissioned by the Van Heusen Charles Co.; Balla, 1991: [30].

12. Balla, 1991: [29]. Pen, ink and water color on paper (9-1/4 x 13-1/4 in). AI. Source unknown. U1977.359.

13. Balla, 1991: [29]. AI. Purchase. X1940.907.6. The second example, presumably the same subject, was titled as shown on its frame. It was signed "Jas Eights," but clearly written below that signature was the note: "Copied by —" — the latter initials being, I think, "A.S.W.," whom I take to be Anna Wrightson. It sold (as an Eights original, done in 1800?) for \$475, plus 10% premium at Jubie's auction, 5 Nov 1995. Anna Wrightson (1830-1904) ran, with her sister Harriet, a finishing school (a "select school," per Albany Directory) for girls at 76 Chapel Street from 1877 to 1899. That was also their home address during the period the school was maintained. Anna Wrightson was buried in Albany Rural Cemetery, whence her life-dates. Most of the information on Wrightson comes courtesy of Wesley G. Balla, who credits her with copying many of the Eights paintings around the turn of the century. I have not been able to find out much more. Perhaps she was the "Annie" Wrightson who gave an oration before the Young Man's Association in Albany 4 July 1859 (*NLIC Pre-1956 Imprints*, 675: 552).

14. "State Bank of Albany and State Street (north side) as it appeared in 1804," says Allison P. Bennett, *The People's Choice / A History of Albany County in Art and Architecture*, p. 60. David Lithgow (born, Glasgow, 1868; died Albany, 1958) was long a resident of Albany and became well known for his historical-allegorical murals and other works. He badly needs full biographical coverage. The painting (judging from a photographic reproduction) has buildings that are drawn with architectural perfection, the trees look like trees and human and equine figures are done professionally. I was recently presented with a photograph of it, done by C.C. Adams (1873-1955), late Director of the State Museum. It was given me by his daughter Harriet Dyer Adams; she identified the artist as David Lithgow, a friend and contemporary of her father. For further documentation, see "State Street in 1806-1810 as pictured by David C. Lithgow" (*Knickerbocker Press*, Sunday, 16 Sep 1934.) For this information and an unpublished essay on Lithgow, I am greatly indebted to Wesley G. Balla, AI. The unpublished essay was written by Charlotte Cramer (1968) and gives major details of Lithgow's long life. Lithgow, with his team of assistants, reconstructed the scene using all available documents and "discovered that existing prints of the structures in the block were based mainly on designs executed in 1806 [!] by a draughtsman named James Eights, who was not always accurate in his dimensions. The building at the corner of James and State Streets [that is, to the right in the picture] for instance was much wider, in Eights' pictures, than the State Bank Building, which Hooker, the architect, had built in 1803." Furthermore, Lithgow had little use for another of Eights's inclusions in his pictures: free-ranging hogs on Albany streets! "'But no pigs,' said artist Lithgow.

'You must remember that Albany in this period was more than 120 years old and civilized. It had passed the pig-in-the-street stage.'" (These statements come from the *Knickerbocker Press* account.) Lithgow may well have been right about the carelessness of Eights in drawing his buildings; he must have been less accurate about pigs, considering that it was not until the early 1830s that Dr. Jonathan Eights and others (as has been noticed) persuaded the City Council to pass an ordinance forbidding the free running

of swine in Albany. In fact, Codman Hislop, in *Albany, Dutch, English, and American*, p. 304, has recorded that in 1854, some 15,000 hogs were, by order of the Common Council, captured and held until owners paid fines. For additional information on Lithgow, see: C.C. Adams, "The World's Fair historic murals," 1943. Some notice of Philip Hooker's design of the old State Bank shown here may be found in D.C. Bucher et al., *A Neat Plain Modern Style: Philip Hooker and his Contemporaries*, pp. 84-87.

EIGHTS IN PANAMÁ AND TEXAS? THE END OF THE 1850s

PANAMÁ

Whatever one says about the decade of the 1850s in regard to James Eights, it was a crowded one. For himself, he traveled from a state of dejection to one of animated action. To what has already been recited, one must lengthen the list of places visited. Characteristically, documentation is scanty. Achievements seem to have been few and unsystematic. Recall that by mid-1856 at latest, as indicated by his letter to Benson John Lossing, Eights was in Albany, where he had few roots. He was receiving mail at an address not his own and — as always — in need of cash. Yet, by the end of the decade, we must believe he had been in Panamá and, one would presume, on a separate trip to the lower Rio Grande.

As for Panamá, we have Eights's own word for it, in the form of a letter to James Hall:

"New York Wednesday Feb. 17th / 58

"Bixbys Hotel, corner of Park-Place, Broadway

"To Profess. James Hall,

"Dear Sir

"You no doubt will consider me strangely erratic, when I inform you that, since I saw you last, I have made a trip to Aspinwall, and so across the Isthmus of Darien to Panama. Here I had the pleasure of meeting our mutual friend Dr. La Conte [!] on his way from Honduras and after a stay of about a week, we returned home together. On our arrival at Aspinwall, I came in contact with a very singular Geological forma-

tion, in which, frequent appearances of fossil shells were seen, and which I should consider — from the very slight inspection that I had an opportunity to give it — to be of quite recent date. The few specimens that I had barely time sufficient to procure, I send you by Express. They lithologically so much resemble some specimens that I once brought from the Island of Hwaffo, on the Pacific side of Patagonia, (off the southern part of the Island of Chiloa) that I think, on comparison, that you will have no difficulty in determining the question, as to their sameness, particularly when I mention the fact, that those specimens are now in the Albany Institute; they were placed in drawers, in the south-west corner of the large room, or museum, where I have every reason to believe they still remain. This Hwaffan formation I think, was considered by Darwin, who examined it, and likewise by Conrad, who saw the specimens, to be the equivalent of the London Clay, (but the Aspinwall locations I should think much more recent)[.]

"Now I wish you would compare the specimen[s], one with the other, and should any of the fossils prove the same, I think an important fact will be disclosed, of a comparatively [!], very recent Geological formation extending thus far.

"This formation is situated about three (3) miles in a northern direction from Aspinwall at a place termed, Monkey Hill.

"When we meet I will communicate further information on this, and other facts that I have

obtained; for the present permit me to sign myself

“Very Respectfully
Yours &c
James Eights.”¹

“Adams’ Express

“Hwaffo” is Eights’s phonetic rendering of Isla Guafo, off the southwest coast of the Chilean island of Chiloé, which he visited in 1830.

This might really be the end of the story, were it not necessary to wonder at what was going on, for nothing has been found to expand upon the meager information imparted by this letter. In any case, either Hall did not agree with Eights’s identification of the fossil shells or did not wish to champion Eights’s theory of close relationship among the widely separated sites. Albany Institute Minutes contain no reference to the matter, even though one might have hoped for a notice, even if negative. Indeed, a check of gifts and accessions by the Cabinet of Natural History through the year 1866 does not mention any such fossil specimens.

Several loose ends are evident here. The story rings true, yet every effort to substantiate it turns to dust. Aspinwall (soon to be officially termed Colón) was the place to be in that era of uneasy wanderings across the Isthmus of Panamá, by people anxious to take the short-cut route to California’s gold fields and avoid a long seajourney around South America. One would think that an American visitor to Aspinwall, either upon arriving or when he left, would have contacted the U.S. consulate there. There is no evidence that Eights did.²

Well, it was an era when Americans wandered at risk but freely where they pleased. Or, perhaps the day that Eights was there, the consul slept late. What about “our mutual friend Dr. La Conte”? That was surely John Lawrence LeConte (1825–1883), a great entomologist of a brilliant family of naturalists. I have not, however, been able to find any indication of interaction between him and Eights, although their paths unquestionably could have crossed.³

Who might have enlisted the services of James Eights in Panamá? Alert to the possibility that Joseph Henry had found a position for Eights, I have combed lists of U.S. government

expeditions in that region. The exploration of Navy Lt. Isaac G. Strain was precisely the sort of expedition that might have used a naturalist who had some knowledge of surveying as well — but it was too early. For a time, I felt sure that I had the answer in Nathaniel Michler’s “Report of a survey for an interoceanic ship canal near the Isthmus of Darien” (1861). It coincided precisely with the time of Eights’s visit; but, unless James Eights simply fell through the sieve, the answer is entirely in the negative.⁴

Thus, the record is murky. Meantime, it appears that nothing pertinent to Eights occurred at the Albany Institute. Ebenezer Emmons maintained his Resident Membership through at least October 1858, despite his professional affiliation with the North Carolina Geological Survey — and the iron reign of James Hall continued both in the area of New York geology and at the Institute itself. R.V. DeWitt became president of the Institute’s First Division in 1857. In October, the Institute library was moved into a room of the Albany Academy. In January 1858, Joseph Henry was present. After being welcomed, he spoke and he and James Hall discussed charges being brought against Henry in regard to the telegraph by Samuel F.B. Morse.⁵

THE RIO GRANDE

The matter of a trip by James Eights into the valley of the Rio Grande is even more of a question mark. Here, we do not have even an orphan letter from himself as proof of the visit. The entire story rests upon Isaac Lea’s new species of mollusk, *Unio Eightsii*, that he named for its discoverer. It was, he said, taken in “Texas and Sabinas River, New Leon, Mexico, [by] James Eights, M.D.” This statement was accompanied by a succinct diagnosis in Latin. There the matter might have rested, with the vague date of 1860 to suggest when it was acquired and no certainty whether it was actually collected by Eights or simply given to him by someone else.⁶

Fortunately, Isaac Lea often repeated himself, sometimes expanding upon what he had written

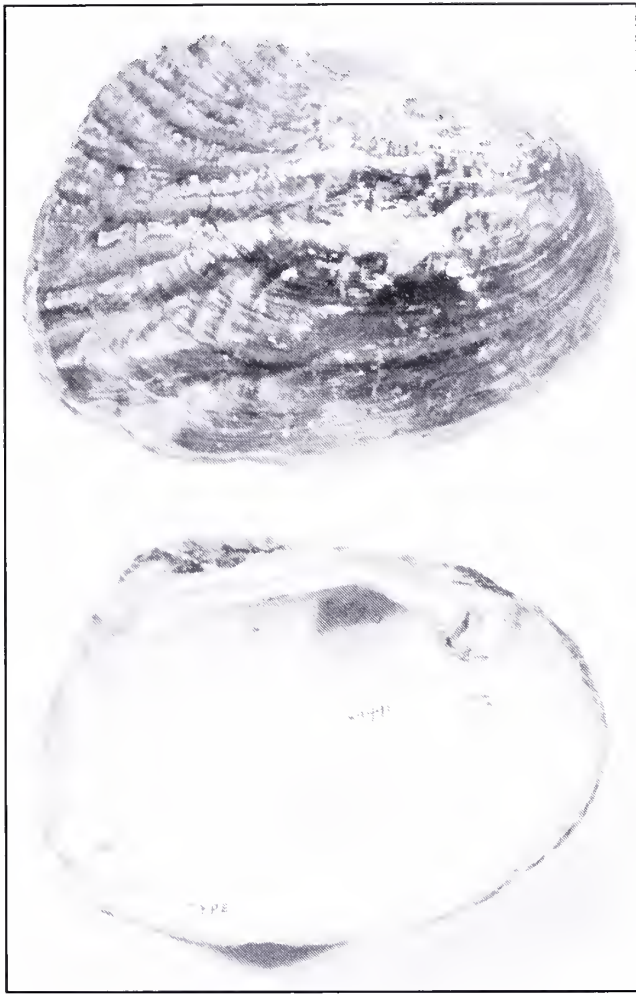


Figure 21.1. *Unio eightsii*, Issac Lea, 1860, etc. Specimens were collected by James Eights, 28 miles east of San Antonio and in the Sabinas River, Mexico. It is now called *Megaloniaias nervosa*. Photos of type specimen #83991, U.S. National Museum of Natural History, by C.W. Hart, Jr., curator.

before. The story still remains scrappy. In one such repetition, without saying more about habitat, Lea provided a diagnosis in English as well as Latin and considerably expanded upon salient characteristics. Then: "Several specimens were brought by Dr. Eights, of Albany, from the two habitats mentioned, and I owe the possession of a specimen to him and one to the Smithsonian Institution....One of the specimens from twenty-eight miles east of San Antonio, Texas, has a rich pearly nacre, the other from Sabinas River, New Leon, has a very white nacre. I name this species after Dr. James Eights, who procured the specimens some years since when travelling through these countries."⁷

The thrice-tangled nomenclatural history of this taxon can be safely footnoted into oblivion. It is now accounted to fly under the title of *Megaloniaias nervosa* (Rafinesque 1820), part of a much more widespread species than Lea envisioned in 1860.⁸

As for Eights in the Rio Grande valley, when was he there? "Some years since" is no help. What was he doing there? As I reviewed the literature on the work done by William H. Emory (1811–1887) in his *Report on the United States and Mexican Boundary Survey*, I was optimistic that somewhere, somehow, James Eights had found a niche in it. It included exploration of the entire Rio Grande, including its lower reaches, in the years 1851–1857. A vast array of naturalists worked on it and reported upon its collections. In one episode, Lt. Nathaniel Michler (mentioned above) in 1854 went from New York to San Diego, via Aspinwall, Panamá, and San Francisco. To date, the record is negative for James Eights.⁹

JAMES EIGHTS AND THE ARMSBY WHALE

This episode is put here because no date can be assigned to it. It is unlikely to have happened earlier, perhaps it occurred up to several years later. A close biographer of Dr. James H. Armsby (1809–1875) can perhaps document the year when he disposed of his collection. James Eights's reputation for covering his trail is well exemplified in this matter. In the New York State Archives, in the correspondence of the Director of the State Museum, James Hall, there is an *undated* letter from James Eights to Dr. Armsby:

"To Dr James H. Armsby

"Agreeable to promise I saw the Bone at the Medical College and determine it to be the skull of the extreme Southern Rostrated Whale the Rorqualis australis of Naturalists.

"It was found, washed up on the shore of Louisiana and covered over with mud, silted up by the waters of the Mexican Gulf. We found it exceedingly common in the Antarctic Seas.

Scarcely a day occurred, that it was not to be seen disturbing the surface of the deep, it no doubt straggled thus far north from its original habitation.

"James Eights"

Overleaf and likewise undated is a later note:

"Dear Mr. Hall

"This note of Dr Eights was given me soon after the Bones were received in the College.

"Yours truly

"J H Armsby." ¹⁰

What nobody says here is that that whale skull had a history. Eights did not have to identify it: Correctly or not, that had already been done. In his final report on the Zoology of New-York for the Natural History Survey in 1842, James E. DeKay somehow managed to include the extra-limital *Rorqualis australis*. He wrote: "In 1837, the skull of a large whale was exhibited in New-York, under the imposing name of 'Fossil Head of the Sea Serpent.' It was reported to have been dug up near the Balize, Louisiana, and was in the condition of a graveyard bone. It had been probably stranded, and subsequently covered by the rapidly forming sediment of the Mississippi. The lower jaw was wanting. The skull, with the upper jaw, was perfect, and measured fifteen feet. After a careful examination and comparison, it was identified with the *Rorqualis australis*, or *Balaenoptera* of the Cape of Good Hope, described and figured by Cuvier (Oss. Foss. Vol. 5, part 1, p. 370, pl. 26, figs. 1, 2, 3, 4). A reduced figure, from a larger one taken on the spot, will be found on Plate 33, fig. 4." ¹¹

There is no mention in lists of donors to the Cabinet of Natural History 1847–1866, inclusive, of this Armsby specimen. In the 44th Annual Report of the State Museum (for 1890), the only whale material mentioned was the lower jaw of a sperm whale and the skeleton of a finback whale. The Museum's collection today certainly has no such specimen nor are there cards from previous times to indicate that this one was ever there (oddly, catalogue cards seem to go back only to 1920!). ¹²

Considerable uncertainty surrounds the identification. David J. Schmidly guessed it to be a humpback whale, *Megaptera novaeangliae* (since *Rorqualus australis* is now considered a synonym of that taxon), a species that is, at least today, rare in the Gulf of Mexico, although it is an extremely widely distributed form. However, I am told by Dr. John E. Heyning, that the large size (assuming DeKay's measurements to be correct) would exclude anything but the very largest humpback; he suggests, rather, one of the commoner large balaenopterid species such as blue or finback whales, the finback being a common Gulf species. Dr. Heyning emphasizes, however, that the absence of a specimen makes identification impossible, since DeKay's illustration is not taxonomically informative. ¹³

Thus, the mystery of Armsby's whale skull ends in mystery — and with it, tenuously and hazily, we end the story of James Eights in the 1850s.

NOTES

1. JE to James Hall; New York State Library, Manuscripts and Special Collections; James Hall Papers, pg. 16478, folder 613. I am grateful to Christine M. Beauregard for providing a copy. It will be noted that Eights was maintaining himself in New York City — that is, he was not staying with his aunt, Phebe (Mrs. James N.) Cobb, at 59 Washington Square.

2. Aspinwall, in the Bay of Limón on the Atlantic coast of Panamá, was founded in 1850 and named for William H. Aspinwall (1807-1875), one of the builders of the Panamá railway that spanned the Isthmus of Panamá. The name was later changed to Colón, in honor of Columbus, who entered that bay in 1502. See: *Encyclopaedia Britannica*, 11th ed., 6: 714. American activity in the Isthmus was relatively intense in that era and there was a U.S. consulate there. According to W.B. Smith, *America's Diplomats and Consuls, 1776-1865*, Alexander Morrell was the representative there in 1857 and Charles J. Fox in 1857-60; according to Joseph Dane Hartgrove, Civil Reference Branch, National Archives, a search of despatches from the U.S. consulate at Aspinwall for 1857 and 1858 revealed no mention of James Eights.

3. John Lawrence LeConte was in Panamá as early as December 1849, as shown by his publications on Panamanian insects. He visited California in the autumn of 1850, explored widely, and after an absence of about a year, returned (George H. Horn, "Memoir of John L. LeConte, M.D.," p. 295). Horn claims: "For a few months in 1857 he accompanied the Honduras Inter-Oceanic Survey, under the command of the late John C. Trautwine, publishing his observations in that region in the report of

the survey. At the same time he visited the Fuente de Sangre, publishing his account of that phenomenon in Squier's Nicaragua." I cannot find any evidence whatsoever that John Cresson Trautwine (1810–1883) was author of a work on the Honduras interoceanic survey. His was *not* a U.S. government survey. Ephraim George Squier, who had ethnological-archaeological interests, was connected with such a survey and wrote several books on it, none of them mentioning LeConte (actually, they appeared too early to cover anything of interest to us). A complete list of LeConte's writings by E.G. Schaupp, in "Obituary / John L. Le Conte, M.D.," nowhere alludes to a publication by LeConte for Trautwine.

4. See "J." G. Strain (his first name was Isaac), report to the Secretary of the Navy, 25 October 1856, on his "Exploration of the Isthmus of Darien between Caledonia bay on the Carribean [!] Sea, and the Gulf of San Miguel on the Pacific," 1854. See also Isaac Lea, "Descriptions of exotic Unionidae," 1859, which includes many of Strain's mollusks from Panamá not mentioned in Strain's report. It was a real disappointment to find nothing on JE in Nathaniel Michler (1827–1881), "Report of a survey," 1861. While one might imagine Eights not showing up in the official account (although people of small function do appear there), a careful search of archival materials related to the Michler survey by Susan W. Glenn of the Smithsonian Institution Archives (letter 31 May 1989) also brought negative results; outgoing correspondence from Baird (who would have coordinated the work of naturalists attached to the survey) do not mention Eights; none of the correspondence of Joseph Henry to Michler in that era has anything of concern to us.

5. AI, Minutes, 14 January, 8 October 1857; 13 Jan, 25 May, 19 Oct 1858. One wishes that F.B. Hough's paper, "Wolf hunting frauds of Franklin Co.," read 19 October, had been printed in full.

6. Isaac Lea, "Descriptions of seven new species of Unionidae from the United States," p. 306, published July 1860.

7. Isaac Lea, "New Unionidae of the United States and northern Mexico," 1860, pp. 367–368, plate 64. The type specimen, from the Sabinas River, Nuevo León, from which the plate was made, is now U.S. Natl. Mus. #83991; a photograph of it has been kindly supplied by C.W. Hart, Jr., curator of the mollusk collection, U.S. National Museum of Natural History. The Río Sabinas is a term nowadays applied only to the upper reaches of the Río Salado and, as such, it is entirely within the province of Coahuila; the latter river then courses through Nuevo León and enters the Río Grande near Guerrero. It is possible that in Eights's day the entire river was called the Sabinas.

8. It was still called *Unio eightsi* (single "i" at end) by Paul Henri Fischer and H. Crosse, in their splendid work on Mexican natural history of the ill-fated French-backed reign of the Emperor Maximilian in Mexico, *Études sur les Mollusques Terrestres et Fluviatiles du Mexique et du Guatemala*; see vol. I, livr. 6, pp. 564, 566, 580, 1878 (vol. II was not completed until 1902); they did not expand upon its distribution in Mexico. As for the tangled nomencla-

ture, C.T. Simpson (1900: 766) synonymized *Unio eightsi* under *Unio heros*, which he then placed in the genus *Quadrula*. When W.I. Utterback (1915, 4: 123) erected his new genus *Megaloniias*, he used as type species *Unio heros* (thereby bringing *eightsi* into his new genus). L.S. Frierson (1916, *Nautilus*, 30: 61–64) argued that *Unio gigantea* was a senior synonym of *heros* — thus, placing *eightsi* as a synonym under that name. D.D. Turgeon et al., 1988 (*American Fisheries Society Checklist of Mollusks*), p. 31, synonymized all the above under *Megaloniias nervosa* (Rafinesque, 1820). (Rafinesque, "Monographie des coquilles bivalves" [1820], p. 296; English [1832], "A monograph of the fluviatile bivalve shells," pp. 22–23, called it *Unio nervosa*.) The final round, one hopes, was the official conservation of *Megaloniias* by the suppression of a validly proposed (but philologically deplored) senior synonym (by the author who proposed both!); see Arthur E. Bogan and James D. Williams, "*Megaloniias* Utterback, 1915 . . ." (1986) and Opinion 1487, Commission on Zoological Nomenclature (1988). I am indebted to Charles Boewe, C.W. Hart, Jr., and, very particularly, Arthur E. Bogan for their patient help with this tangle.

9. See: W.H. Emory, *Report on the United States and Mexican Boundary Survey* (1857–1859). For an analysis of its many accomplishments, see: Meisel, *Bibliography of American Natural History*, 3: 99–105. I am assured by librarians at the National Archives that Eights's name does not enter into the history of the Emory survey (letter 4 Aug 1989).

10. N.Y. State Archives, State Museum Director's Correspondence Files, B0561-78A, Box 1, A 248/1 ("Lists of collection items, 1850s–1870s"). James H. Armsby was an active member of the Albany Institute in the 1850s and 1860s and did much to put the study of medicine on a scientific footing in Albany. For Armsby, see Appleton's *Cyclopaedia of American Biography*, 1: 90–91. I have made a blind stab at dating Eight's letter to Armsby. I suspect the note from Armsby to Hall dates from the period when Armsby was breaking up an extensive collection of animal specimens that he used to illustrate his comparative anatomy lectures at Albany Medical College.

11. J.E. DeKay, *Zoology of New-York, or the New-York Fauna: . . . Part I. Mammalia*, 131–132, pl. 33, fig. 4. There is no doubt that Armsby's whale skull was the one to which DeKay referred.

12. I have checked accessions from 1847 through 1866; the 17th Annual Report, p. 23, recorded the purchase of the sperm whale jawbone. The 44th Annual Report for 1890 (1892), p. 31, has a "Catalogue of the collection of mammalian osteology, September 30, 1890"; there is no mention of Armsby's specimen. It may be assumed that, as an extralimital specimen of little value for display, it was of no interest to Hall.

13. David J. Schmidly, *Marine Mammals of the Southeastern United States and the Gulf of Mexico*, p. 26, 34 (unpublished stranding file, U.S. National Museum); fin-back whale, pp. 46–49; humpback, pp. 54–58. For comments and further information, I am grateful to Dr. John E. Heyning, Marine Mammal Program, Natural History Museum of Los Angeles County (letter, 1990).

JAMES EIGHTS IN THE 1860s

James Eights kept so low a profile as to be nearly invisible through the first half of the 1860s. Beginning with the year 1854, he was absent from the Albany Directory and that absence continued through 1865. Whether this means he roomed with someone who was head of household or boarded anonymously is not known. At any rate, he was not advertising his talent for hire in Albany. Perhaps he resided entirely outside the city. He reappeared in 1866 as "Naturalist, &c., 44 State," which was also his residence. From 1867 through 1869, he was "Mining engineer, 56 State." That was probably his office, for in 1871 and 1872 his business address was the same but he was said to board at 44 State.

THE 1860s: AN ALBANY INSTITUTE RETROSPECT

Since Eights may have kept a foot in the door at meetings of the Albany Institute, a few notes on events there are pertinent. On 29 January 1861, "Prof. Hall" — his old enemy and champion of the Taconic System, Ebenezer Emmons, not present to defend himself — "gave the Institute some account of the dispute among Geologists in regard to the Taconic System, especially with reference to the position of the Canada Geologists upon it." On 17 April, from Professor Hall there came an extended "sketch of the Geology of the State, with special reference to the question of the Taconic System." On 28 May, he harped on:

there was no proof of the existence of such a system, citing especially trilobite fossils to clinch the point.¹

In December 1862, there were 51 members: Ebenezer Emmons, for the first time in many years, was not among them. He died in North Carolina, faithful to the last to his calling there, in 1863: I find no evidence that his passing was noticed at a meeting of the Institute.²

At the January meeting in 1864, James Eights was certainly present: "Mr. [Joel] Munsell moved that a copy of vol. II of the Transactions be presented to Dr. James Eights, one of the old members and contributors to the Institute, who was present, which was agreed to." But does this mean that he was so rarely at meetings that no opportunity had occurred to give him a copy since the completion (and publication) of volume II in 1852?³

On 22 March 1864, Prof. C.H. Anthony read a paper on Amos Eaton. On 19 April 1864, S.D. Willard read a biographical notice of Dr. Jonathan Eights. In both cases, long abstracts were recorded in the 'Minutes.' Dr. William Bay, born in the same year as Jonathan Eights, was still alive 24 May 1864, in his 91st year, while Dr. Eights died in 1848, just short of his 75th birthday.⁴

In January 1865, there were 53 members, among them Richard V. DeWitt and James H. Armsby. Dr. Willard's death was noticed 5 March 1865. On 13 December 1865, Joel Munsell "read a paper on the history of theatres and public entertainment in Albany." At the same meeting, there

was a detailed account by Dr. F.B. Hough of the committee appointed to ascertain the cost of reprinting volume II of the *Transactions*. They had 125 copies of the letter-press, but of the eight plates, they had from zero to 35 impressions; one plate was spoiled and one could not be found. It was moved and authorized to replace the two plates then complete and bind 35 copies; when they were gone, 125 copies of the volume should be prepared.⁵

In February 1866, curators reported that collections had deteriorated badly; zoological specimens were moth-eaten, fluid-preserved specimen jars needed refilling, the coin collection required secure storage, and so on. The committee also discovered a large collection of mosses, presumed to be a part of the L.C. Beck Herbarium that, somehow, had not gone to the State Cabinet when it was purchased in the previous decade. Later that year, James Hall reported on the discovery of the Cohoes mastodon skeleton at Harmony Mills. In January 1867, R.V. DeWitt was reelected president of the first Department; it was his last year of service; on 8 February 1868, there was a special meeting to mourn his death.⁶

In January 1867, James Hall agreed to become a curator of the Institute cabinets only if "some measures could be adopted to preserve or extend the collections." The curators were directed "to report upon the advisability of abandoning or disposing of part of the collections." In February, Hall briefly reported a list of alternatives that had been suggested, chief among them being that "the Institute should donate the collections of Natural History to the State to form part of those now in the state Geological Rooms."⁷

GETTING STARTED

The first article to come from Eights's pen this decade appeared in March 1861. It concerned a "New Chinese silk worm" that was attracting widespread attention in Europe, especially in France, where Félix Édouard Guérin-Méneville was feverishly promoting it. It would, it was claimed, shortly alleviate France's costly

outlay of funds to buy cotton from America, and so on. Perhaps best of all, from Eights's point of view, it fed on the leaves of *Ailanthus*, a weedy and undesirable tree that had spread from homestead plantings. Eights himself added the notion that it seemed likely that at least two very common American silk-producing species, the cecropia and the promethia moths, might be induced to follow the lead of the Chinese moth in feeding on *Ailanthus* leaves, with benefits ecological (as we should say today) and economic.⁸

James Eights began to write seriously in mid-1864, if he was indeed the "J.E." who, under the banner of "The Naturalist," wrote on the subject of "Our songsters of summer." The occasional paragraph is worthy of reproduction and that will be done. Some statements will, likewise, be questioned, for there is a certain strained effort at effect that brings the writer to attribute unreal characteristics to some species. Sometimes, one is surprised at a statement, such as that near his place of residence, "Robins, Wrens, Blue Birds and Thrushes are almost as numerous as Sparrows." What kind of thrushes? More to the point, what kind of sparrows? We immediately think of the house (or English) sparrow. But had that species become by 1864 (after its introduction in 1850) so numerous as to be the commonest of birds in Albany?⁹

The first installment of "Our songsters of summer" sets the stage for later essays. It begins: "It is among our many consolations, that we dwell within the sound of the church-going bells, about three miles distant — as the crow flies — from the noise and tumult of our ancient city, and that nearly all the minstrels of summer revisit our abode, and are to be heard in our garden, the meadows, and the woodlands that surround us....Here we are annually visited by the Brown Thrush, the Wood Thrush, the Hermit Thrush, and the Robin; the Blue Bird, the Song Sparrow, the Warbling Vireo, and a host of other nomadic songsters, equally interesting, but of much lesser fame. Every spring it has occurred to us that it would be an interesting contribution to natural history if we could be furnished with descriptive lists of all the birds visiting and nesting in the immediate vicinity of our larger villages and more populous cities...with special ref-

erence to the nearness of their haunts to the abode of civilized life....Though, during the period of many years' experience in this locality, buildings have increased to an extent that would be saddening indeed were it not true that men are better than trees, and these songsters have not only not left the neighborhood, but this year they literally abound; and since the commencement of the season, we have commonly heard four or more of their number at a time singing in rivalry among the shrubs and trees which surround us...and Robins, Wrens, Blue Birds and Thrushes are almost as numerous as Sparrows. This, we imagine, is to be attributed in some measure to our increasing regard for the protection of the smaller birds; people are beginning to appreciate birds as proper adjuncts of rural scenery." The "supposed ornithological poverty of suburban districts," he opined, "is mainly attributable to the infrequency of a habit of observation among the residents."

I find unrealistic the picture drawn that recounts the large number of birds that, at the height of the season of song, *sing all night*. Let the experimenter, he says, "sit up nearly all the night, in a room overlooking the woodiest prospect they may have about them, and take care to keep the window open. We confess we have set apart many nights during that period to enjoy the perfect stillness of nature, broken only by the barking of dogs, the crowing of cocks, and the singing of the feathered minstrels; it is like adding a year to one's life, so intense is the enjoyment of the coolness of the air, the deep greenness of the fields, and the music and the whispers of the wind. It is generally from before sunset until nearly nine of the night that the concert is kept up with unflagging vigor by Thrushes, Robins, Wrens, Song Sparrows, and Bluebirds, with several others; and the plaintive Whip-poor-will is oft times heard adding his melancholy notes as a chorus to the scene. We have just seen the sun rise after one of these nocturnal vigils, and we feel fresh; the dew is wet upon our face; we feel elastic, and should like to walk up a breezy hill, did not other cares intrude upon our time. We have...counted the voices of a dozen species of birds between three in the morning and the approach of light; after which

time there was such a general jingling of voices, that it was possible only to distinguish the Brown Thrush, the Robin, the Purple Martin, and the Wren and the Sparrow, whose utterances were so distinct as to be at all times unmistakable. Far away on the borders of the forest...we have at night distinctly heard some of these notes of the day repeated during the bright moonlight until near the midnight hour."

The "Brown Thrush, inferior to none but the Mocking-bird in musical talent" is among the earliest visitors of spring. They arrive in pairs but the male at first "faulters in his song, but when his mate commences her cares and labors, his notes attain all their vigor and vitality." "His music has the full charm of innate originality; he takes no delight in mimicry [not correct!], and therefore has no title to the name of mocking-bird bestowed upon him in various parts of the country."

The essay ends with paragraphs on cat-bird and robin. Of the former: "The notes of different individuals vary considerably, so that sometimes his song, in sweetness and compass, is scarcely inferior to that of the preceding thrush [brow thrasher]. A quaintness, however, prevails in all his efforts, and his song is frequently made up of short and blended imitations of other birds, given with great emphasis, melody and variety of tone; not unfrequently invading the hours of repose, in the late twilight of a summer's evening." He alleges that its cat-like call sometimes became unpleasant enough that people were known to kill them because of it. Robins, he says, make their appearance in pairs (certainly not true today) and, "as the season progresses, they, from the trees of the orchard or the edge of the neighboring woods, may be heard delivering their simple, thrilling lays, in all the artless energy of true affection. This earnest song recalls to mind the mellow whistle of the Thrush [which species is not clear], which, in the charming month of May, so sweetly rises in warbling echoes from the low copse and shady glen."

"Songsters of summer — II" continues the series and, after an introductory statement, concentrates on the Bob-o-link and Wood Thrush.¹⁰

"We have long entertained the belief that an accurate observer of nature, in the days of his perfect vision, would easily be enabled to count off the months, and sometimes even the weeks, by the voices of the birds. True to the almanacs, within a few days, from far to near, and in some cases, true almost to any hour, the songsters of the woods and gardens publish their arrival, and their changes of mood, and feeling, and prosperity in their calls, carols, and utterances of fear, warnings, anger and of love. There is most generally a dead pause from the beginning of August until the middle of October, when the sparrows and a few other songsters have it almost all to themselves, to do as they please with the hedgerow and woodside echoes. Then the concert begins again, with the robin as their leader, and a succession of performers follow, thrushes, blackbirds, warblers, wrens and finches of many species. But all these make little more than a confused twittering and harsh clangor, from amidst which rises distinct and clear the rich though melancholy warble of the robin and the loud detached whistling of the oriole and thrushes." A naturalist might question whether there is so general a recrudescence of song among so many species at this time of year.

"But the opening of the first flowers of spring is the signal for a general outburst. Then the loud bob-o-link, with his restricted compass and unskillful execution, makes amends for poverty of art by lustiness of expression, and leads the way, as the robin did before, but to a much nobler chorus. All the summer long have we heard this omnivorous minstrel thrilling out his wild, jingling notes — his cheerfulest melodies — in the bright morning sky over our suburban meadows; and with every advance of the season their energies rapidly increase in volume of voice, and in volubility of expression; and then there is such a joyous outpouring of song that the few notes over which the music ranges and its poverty of composition are unnoticed, while we yield to the spirit of gladness which pervades every utterance."

There are brief references to songs of brown thrush, blue jay, robins, sparrows (the latter not further identified).

"The solitary Wood-Thrush comes to us early

in the spring, and is always of a shy and retiring disposition, making his appearance generally alone, or only in single pairs; and while he willingly charms us with his song, he is content and even solicitous to remain concealed. At the dawn of morning he now announces his presence in the woods, and from the top of some tall pine rising through the dark and shady forest, he pours out his few clear and harmonious notes in a pleasing reverie....The prelude to this song resembles almost the double tonguing of the flute, blended with a tinkling, shrill and solemn warble, which re-echoes from his solitary retreat like the dirge of some sad recluse, who shuns the busy haunts of life. The whole air consists usually of four bars or parts, which succeed in deliberate time, and finally blend together in impressive and soothing harmony, becoming more mellow and sweet at every repetition. Rival performers seem to challenge each other...vying for the favor of their mates with sympathetic responses and softer tones. Like the Robin and some few other species, in dark and gloomy weather, when other birds are sheltered and silent, the clear notes of the Wood-Thrush are heard through the dropping [!] woods from dawn to dusk, so that the sadder the day, the sweeter and more constant is his song. His favorite haunts are the low and shady glens by the water-courses, so often rendered dark with alder bushes, mantled with the trailing grapevine."

"Songsters of summer — III" emphasizes especially Red-eyed Vireo, Song Sparrow, and blue-bird.¹¹

"Early, about the beginning of May, appears to us that indefatigable songster, the Red-eyed Vireo [Vireo] or Greenlet. It inhabits the shady forests or tall trees in the neighborhood of our garden, and sometimes the suburbs of villages, where its loud, lively, and energetic song, is often continued with little intermission for several hours at a time, as it darts and pries among the thick foliage....From its first arrival until mid-summer, it is the most distinguished warbler [he means singer, not 'warbler' in the ornithological sense] of the forest, and when almost all the other birds have become mute, its notes are to be heard with unabated vigor. Even to the com-

ment of October, still enlivened by the then feeble rays of the sun, he faintly recalls his song, and plaintively tunes a farewell to his native woods. In moist and dark summer weather, his voice seems to be one continued, untiring warble, of exquisite sweetness; and even in the most populous and noisy streets of our city, his shrill and tender lay is sometimes heard from the tall elms."¹²

"With the first appearance of spring, should the weather prove mild, our familiar and domestic little Song Sparrow, accompanied by the Blue-bird — two of the earliest, sweetest, and most enduring warblers — visit our abode to cheer the yet dreary face of nature with their ever welcome, well remembered, social songs. The latter bird flits restlessly through the orchard or neighboring fields; while the sparrow, more social, frequents the garden, barn-yard, or road-side, in quest of support, and from the top of some humble bush, stake or taller bough, tunes forth his cheering lay in frequent repetition, for half an hour or more at a time. These notes have some resemblance to parts of the Canary's song, and are almost uninterruptedly and daily delivered, from his coming to the commencement of winter. When he first arrives...the strain appears contemplative, and often delivered in a peculiarly low and tender whisper....At the approach of winter, this vocal thrill, sounding like an orphan farewell to the scene and season, is still more exquisite....Individuals also excel and vary their song from time to time with very agreeable effect."

"The Blue-bird is among the earliest of our minstrels of the woods, the garden, and the waysides, and continues his music almost uninterruptedly from the month of March until late in the season of autumn. His song is a soft and rather feeble, but delicate and pleasing warble, often repeated at various times of the day, but most frequently in early spring....All his energy is poured out into this simple ditty, and, with an ecstatic feeling of delight, he often raises and quivers his wings e'er he again descends to his favorite perch....Gentle, peaceable and familiar when undisturbed, his society is coveted by every lover of rural scenery, and it is not uncommon for the farmer to furnish the Blue-bird with

a box as well as the Martin, in return for the pleasure of his company, the destruction he makes upon injurious insects, and the cheerfulness of his song."

"Our songsters of summer — IV" considers various philosophical matters, then alludes specifically to the "Thrush," Hermit Thrush, Warbling Vireo, Red-winged Black-bird, and Purple Finch, occasionally leaving one a little uncertain where observation ends and fantasy begins.¹³

"It has frequently been remarked that birds of song generally haunt the dwellings of man. This is particularly the case when applied to our own country, though it is a sad mistake, also, to allege that the birds of the tropical wilderness are deficient of musical powers, for in the burning regions of our delightful land, the richest bird-music is to be heard in districts where man is at most but a sojourner, and has never chosen a site for a city, a village, or even an encampment....But the question has frequently been suggested, what do the birds themselves mean by these vocal sounds? for these exquisite utterances have a meaning, we may be sure, and are not far from parallels to the hymns and ballads we sing ourselves....When the heart is merry we are wont to sing, and while the woods and gardens resound with a thousand melodious lays, we can discover therein a new cause for thankfulness to the Father of all things, not only that we are made happy thereby, but that all the world brims with joy and speaks aloud in ecstasy, in the voices of these timid, fleeting creatures."

A disquisition upon the dispute whether bird songs are sad or joyous follows: the decision being that it depends upon the mood of the listener! Some accounts of "Thrush" song follow, it being uncertain what species is meant.

"Early in the spring, and but for a few weeks only at a time, are we visited by the Hermit Thrush. This species, so much resembling the Nightingale of Europe in color, is scarcely inferior to that celebrated bird in its powers of song, and greatly exceeds the Wood-Thrush in the melody and sweetness of its lay, and like it, also, it appears to court solitude, and live wholly in

the woods, frequenting the dark and desolate shades of the forest....In manners it strongly resembles many of its associate species, but its song seems to be unusually lively and varied, warbling sometimes like the Yellow-bird, and then again chanting its notes like those of the Robin."

"One of the sweetest and most constant songsters of our forest glade, is the Warbling Vireo, which visits early in the month of May. Its livery...is plain and unadorned, but the sweet melody of his voice, surpassing, as far as nature usually surpasses art, the tenderest airs of the flute, poured out often from the rising dawn of day to the approach of evening, and vigorous even during the sultry heat of noon....While chanting forth his easy, flowing, tender airs, apparently without effort, so contrasted with the interrupted emphatical song of the Greenlet [red-eyed vireo], he is seen gliding along the thick and leafy branches of our most stately elms and tallest trees, busied in quest of his restless insect prey. They are seldom seen in the woods; but from the tall trees which decorate the streets and lanes of our cities and villages, the almost invisible musician...is heard to cheer the house and cottage with his untiring song. As late as the beginning of October, we can still distinguish his tuneful voice from amidst the yellow fading leaves of the linden, near which he had passed away the summer hours."

"From the beginning of April until May, according to the nature of the season, the Red-winged Black-bird visits us from the south in scattered parties, flying chiefly in the morning; and as they wing their way they seem to relieve their mutual toil by friendly chatter, and being the harbingers of spring their faults are forgotten...and we cannot help greeting them as old acquaintances....As the season advances they congregate in dense flocks, and move about in blackning [!] clouds, rising suddenly at times with a noise like thunder....After whirling and waving a little distance, they descend as a torrent, and darkening the branches of the trees by their numbers, they commence a general concert that may be heard for more than two miles. This music seems to be something between chattering and warbling; jingling liquid notes

like those of the bob-o-link, with their peculiar complaining chirps, jars, and sounds like saw-filing, or the motion of a sign-board on its rusty hinge; the whole constituting a novel and sometimes grand chorus of discord and harmony, in which the performers seem in good earnest indeed."

One may be forgiven for being skeptical in regard to the breeding in the Albany area that appears to be claimed for the purple finch; that it is not spoken of as ever resident in winter is also to be noted; still, the characterization of the song and its comparison with that of the warbling vireo are well taken. "The Purple Finch, well known to us as the American linnet, re-visits the scenes of his former years, about the beginning of May, to pass the most important period of his existence among us, cheering us with his melodious lays, as if for his own gratification as well as for ours. Their notes are very similar to those of the warbling vireo, but louder and more agreeably diversified. From the tops of our lofty and wide-spreading elms, or shadowy spruce trees...their varied and very cheerful melody is often continued for hours....The song of this beautiful bird is, indeed, much finer than that of the canary; the notes are remarkably clear and mellow, and trilling, sweet and various, particularly on their first arrival."

At this point, we have a problem. In August 1864, "The Bee-Keeper's Department" of the *Country Gentleman* carried a two-part article signed by "J.E." entitled "Honey and the honey bee." "J.E." has proved sometimes to be James Eights; at other times, there is certainty that he was not the author. Sometimes, one is merely uncertain. Here, there is nothing to go on. The smooth acquaintance of the author with his version of sugar chemistry certainly seems to partake little of James Eights. The writing is not his, unless he simply copied the bulk of it. Until someone proves that Eights wrote this article (or was responsible for his name being attached to it), I deem the author not James Eights.¹⁴

"Our songsters of summer — V" concerns not song but the songsters and how they come to spend a certain part of the year with us, especial-

ly, as the subtitle informs us, "The migration of birds."¹⁵

"What a mystery is the migration of birds, and how much greater a mystery has it been made by a certain class of naturalists who persist in treating animals as if they were mere receptacles for food and vehicles of fur and feathers. But the notions of Linnaeus do discredit to that generally broad-minded philosopher, for the great master clung to the notion of swallows hibernating under the waters of ponds and stagnant pools. Stranger still, that an accomplished author, most observant of observers, had a secret fancy for the hibernating hypothesis, though well aware of the fact that the temperature of the blood of any of our summer birds is higher than that of man, or any other of the most active creatures. For a bird to hibernate, especially under water, is simply impossible. So energetic is the life of these little creatures that while they remain with us they scarcely sleep at all. You shall see swallows and chimney swifts darting about till the last moment of twilight, and you shall see them again at three the next morning, wheeling aloft and twittering as freshly as if they needed no rest; and so with many of the warblers; the almost unbroken continuance of their song during the twenty-four hours round, is a proof of the energy of the circulation and all the vital processes. Their bones are hollow, they are themselves reservoirs of oxygen, and the flame of life burns more fiercely in their breasts than in any other class of animated creatures. Two circumstances have also been noticed by authors, about migratory birds — first, that these 'untaught, unthinking creatures,' should know the proper times for their passage, when to come and when to go; and also, that some should come when others retire. In what revelation do we read that they are in either case such utter negatives? Surely only in that of human variety. Experiments with which every teacher or tamer of birds is familiar, prove that their natural songs are acquired by the same process as we acquired a knowledge of A, B, C at school. As you pass along the edge of the copse in July and August you will hear hundreds of little birds recording the songs they are just learning from their parents, and the older ones always sing until their

young have learned their lesson properly; and hence, though the old male usually sings less vehemently after he has found a mate, he does sing till August if the first brood has met with an accident and the parents hatch out a second. Take a young bird from the nest before it is old enough to have learned from its parents, and it will learn any song or no song, just as the circumstances influence it; thus a canary has been brought up to the song of the nightingale, and sings it to perfection[.] Hen birds of almost any kind will sing nearly as well as the cocks if well trained from the nest, and if singing is so much a matter of tuition, why should not flying be? Anywhere during the middle and latter part of summer you may see the sparrows teaching their young to fly, and a pretty sight it is; the prettiest of the season. If they are taught to fly from a tree to the ground, and from the ground to paling, why not over seas and continents in such cases as render long flight necessary? Instinct gives no account of motives of caution in avoiding accidents, as of the almost supernatural powers of sight and wing which migratory birds possess. A swallow will fly a mile a minute, and in the course of a season traverses eight times the circumference of the globe, in search of flies, within the range of but a few acres of territory.

"Let those who cling to the unsatisfactory solution of instinct, keep carrier pigeons about three years, and fly them on scientific principles, and they will, at the end of that period, toss the idea of 'untaught, unthinking creatures,' to its proper limbo, among obsolete notions. There are three things noticeable in the migration of birds; first, that the change of residence is desirable; secondly, that they know where to go, and thirdly, that they [know] how to go by the safest and the shortest route. Mexico and the tropics house a vast number of our summer visitants; why, we cannot say, except that doubtless the food and climate suits [!] them. And what a blessing that our woods and flowery leas and gardens, are deemed worthy of so long a stay among us, and of deep domestic joys, by such happy, confident and silvery throated creatures. The puzzle to naturalists is that they find their way over lakes, rivers, deserts, and seas to the very spot that best suits them, and as many of these birds have

never made this particular flight before, it most probably is, that, as they generally go in flocks, there are in every flock, a certain number who have made the journey before, and can pilot the way for all the fledglings. Nor is it such a great undertaking when circumstances are considered, as it seems they rest on the rigging of ships, on headlands and floating sea-weeds when stress of weather compels, and as the majority of migratory birds are insect eaters, they will probably find enough food to support them while on the wing, both by sea and land.

"When we see a sheep leave a parched herbage to rejoice in clover, it does not surprise us...the flight of a bird to a region adapted to its habits when its hitherto home has ceased to be attractive, is but a similar process on a grander scale....To talk of magnifying the Creator by ascribing all those movements to unerring instinct, is to reduce Almighty wisdom to the cunning of an artist who made a toy, and is half frantic that it dances when he pulls the strings. How much more consistent with the plans and operations of nature which He has ordered, to believe that these wanderers have had given them a sufficient intelligence to rule their lives for good and direct their appetites and passions for the preservation and increase of each particular race."

"Our songsters of summer — VI" comments on various individual songbirds, specifically Indigo Bunting, a "Grassfinch" (presumably vesper sparrow) and bob-o-link.¹⁶

"About the middle of May the very beautiful and rather familiar messenger of summer, the Indigo bird, after passing his winter in the south, again joyfully revisits the scenes of his former habitation, clothed in his brilliant azure livery of the nuptial season. ...

"Though naturally shy, active and suspicious...they still, at this interesting period of procreation, resort chiefly to the precincts of habitations, around which they are far more common than in the solitary woods...but their favorite resort is the garden, where, from the topmost bough of some tall tree...the male regularly pours out his lively chant....Nor is this song confined to the cool and animating dawn

of morning, but it is renewed and still more vigorous during the noon-day heat of summer. This lively strain seems composed of a repetition of short notes, commencing loud and rapid, and then slowly falling, they descend almost to a whisper, succeeded by a silent interval of about half a minute, when the song is again continued as before. The modulated portion of the song is usually uttered at the time that the female is engaged in the cares of incubation. ...

"The plainly adorned Grassfinch chiefly frequents our dry pastures and meadows, and is often seen perched on the fences and in the orchard trees....From the commencement of May to the beginning of June, they sing with a clear and agreeable note, scarcely inferior to that of the canary, though less loud and varied....Their song begins at early dawn, and is again peculiarly frequent after sunset until dark...when from the fence of some elevated pasture-field in the cool of the summer evening, when other songsters have retired to rest, more than usually wakeful, after a silence which has continued nearly through the warmer part of the day, pipes forth his clear and slender, though now almost monotonous song;...and from all the neighboring meadows...as the last rays of the sun are reflected from the dusky horizon, we hear a constant repetition of an echoing and shrill sounding voice, with warbling tones blended and varied at the beginning and close of this simple, rather pensive, but agreeable ditty. ...

"About the middle of May the meadows in this vicinity begin to re-echo the lively ditty of the Bob-o-link, the males arriving a little earlier than the other sex....Many quarrels occur before the mating is settled....The song of the male continues with little interruption as long as the female is sitting....Often while mounted and hovering on the wing at a small height above the field, as he passes along from one tree top or weed to another, he utters such a jingling medley of short variable notes, so confused, rapid and continuous that it appears almost like the blending song of several different birds. Many of these tones are very agreeable, but they are delivered with such rapidity that the ear can scarcely separate them."

We have now to consider a two-part essay "On textile vegetable fibre." Although signed "J.E." at the ends of the installments (the bird pieces have uniformly been so signed at the beginning), I am convinced that James Eights was either not the author or else he was copying to a remarkable degree. The accounts are comprehensive — almost encyclopedic — and well informed.¹⁷

"Our songsters of summer — VII" is an account of the role of birds in human life and economy, with a further reference to the song of the whip-poor-will.¹⁸

"Towards the middle of May just at the close of day, when the shadows of evening begin to fall deeply over the land, we for the first time in the season, hear the ever plaintive and melancholy strains of the Whip-poor-will, mournfully resounding from the deep and hitherto silent recesses of the forest. ...

"With us, the birds of the night do not appear in such unaccountable numbers as in the more southern portions of our country, but are far from being uncommon, and always affect sheltered, wild and hilly situations, for which they have in general a preference. ...

"In the evening soon after sunset, it commences its singular serenade, and continues it with short interruptions for several hours together, and towards morning the note is also renewed until the opening dawn."

"Our songsters of summer — VIII" considers baltimore oriole, yellow-bird (the goldfinch, not yellow warbler, is meant) and house wren, in whose account the author introduces comments on blue-bird, and martin.¹⁹

"The Baltimore Oriole or Golden Robin, visits us in the month of May, but does not confine his habitation for the season to the suburban districts alone; for from amid the fine verdure which so beautifully adorns our park and city highways, his familiar and flute-like melody may oft-times be heard, and his singularly suspended pensile nest seen, artfully attached to the twigs or minor branches of the gracefully waving elms. Here he loves to pour forth his wild and plaintive songs, from amid the din of the passing crowd and the tumult of incessant and noisy occupations.

"It is here with us, that they pass the most interesting period of their lives, and their arrival is hailed as the sure harbinger of approaching summer....At first the males only arrive, but without appearing in flocks; their mates are yet behind, and their social delight is incomplete....They also now spend much time in the apple trees, often sipping honey from the white blossoms over which they wander with peculiar delight. ...

"The mellow whistling notes which these birds trumpet forth from the high branches of our tallest trees, are subject greatly to vary from each other in their tones, so that an accustomed ear can readily distinguish the familiar sounds of the favorite bird that in former seasons reared its brood in the adjoining trees; for, if undisturbed, they are well known yearly to revisit the same spot. The female likewise sings, but less agreeably than the male;...her notes are now heard in a sort of querulous and plaintive strain, singularly pleasing to the ear.

"Our social little Yellow-bird is found with us nearly throughout the varied seasons of the year, and being naturally of a vagrant and wandering disposition, it continues to live in flocks, and hovers about our door, and in the orchard and gardens surrounding them — unless driven by the pelting of the pitiless storms of winter, to seek protection and shelter amid the depth of the forest, where its favorite food is unencumbered by the snows. As the fine weather of spring approaches, they put off their humble winter dress, and the males, now appearing in their temporary golden livery, are heard tuning their lively songs as if it were in concert, several sitting on the same tree,... vying with each other in the delivery of their varied, soft, and cheerful warble. They have also the faculty of sinking and raising their voices in such a delightful cadence, that their music at times seems to float on the distant breeze, scarcely louder than the hum of bees; it then breaks out...into a gradually increasing sound which rings like the loud song of the Canary....In cages, to which they soon become familiar and reconciled, their song is nearly as sonorous and animated as when free in the open air.

"Nor must we...forget the lively, cheerful, capricious, and well known little House-Wren, although only a warm-seasoned resident of the United States, — wintering in the far-off regions of the South; and it is often a matter of surprise to us, how this and some other species, with wings so short and a flight so fluttering, are ever capable of arriving and returning from such distant countries. At any rate, come from where he may, he makes his appearance some time in the early part of May....His nest, from preference, is near the dwelling, placed beneath the eaves, in some remote corner under a shed, outhouse, barn, and when provided with the convenience, in a wooden box along with the Martins and Blue-birds. He will even make his nest in an old hat, nailed up and perforated with a hole for entrance, or the skull of an ox stuck upon a pole, or a gourd suspended from the branches of a tree in the garden. ...

"The song of our familiar little Wren is loud, sprightly, and tremulous, uttered with peculiar animation, and rapidly repeated; at first the voice seems ventriloquial and distant, and then bursts forth by efforts into a mellow and echoing warble. The trilling, hurried notes seem to reverberate from the leafy branches in which the musician sits obscured, or is heard from the low roof of the vine-mantled cottage, like the shrill and unwearied pipe of some sylvan elf. His lively and querulous ditty is, however, still accompanied by the slower measured, pathetic chant of the red-eyed Flycatcher [red-eyed vireo?], the meandering, tender warble of the musical Vireo [warbling vireo?], or the occasional loud mimicry of the Cat-bird....He is rather a bold and insolent intruder upon those birds who reside near it, or claim the same accommodation. He frequently causes the mild Blue-bird or Martin to relinquish their hereditary claims to the garden-box, and has been accused — and we hope unjustly — of sucking their eggs. Nor is he any better contented with neighbors of his own fraternity who settle near him, keeping up frequent squabbles, like the other little busy bodies who are never happy but in mischief."

"Coal and its origin" is a two-part article signed "By J.E." That it is by James Eights, I very much doubt. The writing is not at all like his

usual prose. More to the point, I think, the views expressed are precisely those of the conventional authority. Coal is a carbonaceous mineral derived from ancient plant growth. While it is possible that Eights had finally come to see the error of his ways in regard to the genesis of coal (as expressed in his account in "Notes of a pedestrian" in *The Zodiac*), a simpler explanation is that the essay was written by a popular naturalist of the day. A few quotations will suffice to demonstrate the trend of the argument.²⁰

"What stranger produce can there be, of all the treasures that our mother earth has furnished us, than coal? What countless years of manipulation has it undergone in the mysterious laboratory of nature? What centuries of timber-growth, what ages of forests have been exhausted in the accumulation of its material! How far back in time did the Divine Architect foresee the destiny of man, and lay up almost inexhaustible stores of fuel for his future use? What would man be, deprived of fire?...By fire he cooks his food, and becomes universal in the geographical distribution of his race....And for the supply and maintenance of this fire he looks to coal, — to coal, the chemical and age-elaborated product of decayed and perished ferns, club mosses, equisetacea and dicotyledonous trees. ..."

"On the 'eland' cattle as a breed," signed by "J.E.," appeared as a contribution in the department entitled "The Grazier and Breeder." It was a rosily optimistic promotion of the possibility of providing "the permanent addition to our meadows of an entirely new and distinct species of cattle, furnishing a wholesome meat of a novel kind to our tables, to vary the eternal round of beef, mutton, and pork." The animal in question, a large antelope of Africa, was being subjected to experimental breeding in France and, especially, England. It was anticipated in England, "that at no distant period a regular supply of the delicious meat which they furnish will be found in their markets....How desirable it would be if some of our enterprising cattle-breeders should be induced to make the experiment of a trial of the Eland in this country, so rich and abundant in the grasses."²¹

From the middle of October 1864 to the middle of April 1865, we find nothing attributed to

author "J.E.," so dubiously proved to be our James Eights.

"The Coleophora or tent-building caterpillar" is denoted in its title as in two parts. It is signed only at the end of the second part by "J.E." While on an insect species, as so many of Eights's articles have been, this one proves a puzzler. The title is misleading, since the tiny larvae are case-builders or case-bearers, not tent caterpillars at all. Since the name is correctly derived in the text, did Eights make such a mistake? Overall, the text flows smoothly, the viewpoints are sophisticated and varied — characteristics hard to equate with the usual writing of James Eights.²²

"On the utility of the maize plant" is on a theme — that of frugal use of resources otherwise neglected or thrown away — that might be thought of interest to Eights. It is signed "J.E." and is not particularly smoothly written. On balance, however, I think it is probably not by Eights, partly because of its fairly sophisticated handling of technical chemistry.²³

"The Fasciola Hepatica or sheep fluke" is a contribution by "J.E." under the departmental title "The Grazier and Breeder." It is a sophisticated pot-boiler by someone who knows (or copies from someone who knows) both his sheep and his flukes. I label it doubtfully by James Eights.²⁴

"Italian Mode of Fattening Ortolans," signed by "J.E.," appears in "The Poulterer's Companion," under the same date as the preceding article. Even if by James Eights, which I doubt, it is almost entirely a direct quotation of a lecture on the practical physiology of fattening caged wild birds in Italy raised for the table. We should think of it today as a manipulation of photoperiodic responses in the birds, causing them to eat oftener in a 24-hour period than they would in a normal single light-dark period. It is an interesting application (and well documented historically) but "J.E.'s" contribution is to add: "Cultivators of poultry, and furnishers of game birds for the table, we think might possibly derive some advantage from pursuing this Italian mode of rearing and fattening birds for market. The ortolan is likewise a native of this country, and may frequently be met with in the

winter season, in flocks, feeding along the public highways leading to the city." Now, the final statement is incorrect, if the writer is American and uses the term "ortolan" in any known sense. In Europe, it is a sparrow-like bunting; in America, the term is nearly exclusively applied to the native blackbird commonly called bobolink — which is not found in North America in flocks in winter, for it winters in southern South America.²⁵

"Eyes of insects" is in two parts, under the general title "The Naturalist." Both parts are signed "J.E." If it is by James Eights in any way, he contributed an introductory paragraph and then copied or summarized the rest of the text from another author.²⁶

"Scraps from my every-day book — I" seems a tailor-made title for a piece by Eights. It is signed "J.E." and sounds as if written by Eights. It is quoted below. I am surprised that he considered the lush herbage of spring and summer to furnish a greater proportion of indigestible "inorganic" material, stems, and fibers than grass grown in a harder time of the year. Nor can I perceive any correlation between the abundant growth of southern corn plants and the tough "sedge grass" that replaced it on fields when nutrients were depleted and the soil would no longer produce corn: The grass would not equal in bulk that of the usual expected southern corn crop. I am sure the longest-lasting piles of excrement that he describes quite well were left by animals that had fed on tough, woody food during harsh winter months.²⁷

"Nothing can exceed the beautiful luxuriance of the verdure with which nature has adorned our mountains, our valleys, and our fields, at this present season. This may be seen in the greatest perfection by the intelligent traveller, as he musingly pursues his way through the more northerly and most mountainous portions of our State. On every side he beholds the trees, and shrubs, and herbs, most densely clothed with foliage, and of the largest growth, and their flowers most resplendent with fragrance and beauty — joyfully anticipating an abundant harvest when the season for gathering in shall have arrived.

"During the past three months my pursuits have repeatedly led me through the various portions of this sublime and delightful region, and each time as I beheld the vegetation rapidly advanced, have my enjoyments increased in number and perfection; and, as often...has the question naturally presented itself to my mind — Do the grasses when of such rapid and luxuriant a growth, furnish as large a quantity of nutriment to the cattle that feed on them as those of a slower development and a less fertile appearance? In order to obtain a proper solution to this inquiry, I was induced to turn my attention to an examination of the frequent masses of excrement profusely scattered about, and the earliest result was the fact that those deposits which had longest remained on the fields, freely exposed to the decomposing influences of the atmospheric agents, still retained their natural size and form, and on being broken, invariably presented the appearance of being almost completely constructed of indigestible, inorganic materials, stems and fibres of the plants, nearly an inch in length, and composed principally of silex or flint, and consequently could be of little or no essential benefit to the animals that devoured them in the living state. This, to such a degree I have no recollection of ever witnessing in less luxuriant seasons.

"It is to be desired that some of your numerous practical agriculturists, who have ample leisure, would properly determine the above question, and furnish an answer. It is a well known fact that the white corn — almost exclusively cultivated in the southern States — frequently grows to the enormous height of from 15 to 20 feet, but seldom produces more than two or three ears, and sometimes but one; whereas our yellow plants of the north, which are by no means of so vigorous a growth — when properly attended to — yield more than double that number. And I may add that the many neglected fields of the south are speedily being run over with a vigorous growth of sedge grass, composed almost completely of silicious particles, and on which no animal whatever will feed, unless it be when it first springs from the soil, and then they but poorly thrive. J.E."

"Slumber of insects," signed "J.E.," is probably not by Eights. It lacks the notable characteristics of his writing. In any case, much of it is a direct quotation and little of the remainder appears to be the result of personal observation.²⁸

"Haschisch — *Cannabis (Indica) sativa* — *Common Hemp*" is a two-part article that is largely a direct quotation from an unnamed author. This part is entirely ignored here. Whether the residuum is by Eights, the reader may decide. I incline to think not.²⁹

"Under the name of *Haschisch* is indicated the intoxicating preparation made from a species of hemp bearing the appellation of *Cannabis Indica*, now fully determined by botanists to be identical with the *Cannabis sativa*, so extensively cultivated in this country [that is, for its fiber], as well as in many others. The tops of the plants when in flower...are employed in its production, and the details of the process are not [=now?] known. It is prepared in two distinct forms, as an extract shaped into slender cylinders more or less long, and in thin tablets containing sugar, which have an agreeable and peculiar flavor. From the extract an alcoholic tincture is obtained, also *pastilles sucrées*, and several other preparations in which fatty and aromatic substances enter. Sometimes the *Haschisch* is smoked with tobacco, or it is mixed with coffee, tea or other drinks.

"This substance is remarkable for a special action upon the human economy, which must not be confounded with that occasioned by alcoholic fluids, or by opium, and the general run of other narcotics.

"The extraordinary effects of this vegetable substance...[gained the attention of] one of the most eminent and learned professors of England,...in consideration of the interest it might prove to the medical profession as a therapeutic agent....With this purpose in view he was induced to commence a series of experiments, and, in the first place, by a trial of its effects upon himself, and minutely register the result. This he has accomplished in a most graphic manner, and we trust the readers of the *Co. Gent.* will be amusingly gratified by the perusal. ..."

The results of the professor's experiments are more or less predictable and aficionados of intoxicants may wish to check out the story. The quite long excerpt ends with the observation: "So much for the Professor's first experiment, which was succeeded by two others of a similar nature, equally interesting, but far more ridiculous in their sensations and conceits; but these I shall reserve for some future communication." For the latter, see the second part of the article.

"In the Professor's second experiment with haschisch...he noticed that every physical and mental power seemed strongly intensified. The illusions were more agreeable, as well as more ridiculous. ..." The account ends with a comparison of the effects of hashish and opium, with no indication of the source of the information — it may be the English professor or it may, in some part, be from the author (Eights?) himself. It seems likely to be the former. "With the latter [opium] the mind and body become alike contented. Pain soon ceases after commencing to smoke a pipe in which a fragment of opium is mixed with the tobacco. On the other hand, haschisch causes pain, and many unpleasant sensations are mingled with the most delightful of the visions it presents. Another distinction is that opium always causes some amount of nausea when its pleasurable effects are over. Haschisch leaves a slight depression, but the stomach does not appear to be affected; but this might be different if the use of it should become habitual. Another distinction is that the mind can pursue a train of thought logically while influenced by opium, but haschisch causes so many alternations of feeling that sequence is destroyed."

"Mordants and dyes — No. I [II, III]" is a three-part essay. It is a sophisticated and technologically and chemically informed article, written in a style quite removed from Eights's usual language. I feel sure that it is not his, unless he simply lifted it bodily from another source.³⁰

"How to destroy sheep sorrel" is a short essay that shows evidence of being the work of James Eights. It is, however, signed merely "J.E." as are the dubious ones. Perhaps he chose things suitable for the readership, then from time to time contributed one from his own experience.³¹

"In one of your numbers a few weeks past, my attention was directed to an article on the destruction of the *Rumex acetosella* [acetocella] or sheep sorrel, and the remedies enumerated to accomplish the object.

"A few days since, while leisurely traveling along the beautiful valley through which the head waters of the Hudson pursue their ever varying course, I was in many instances unpleasantly impressed by the abundant appearance of this pernicious vegetable product in the meadows on either hand. In many extensive tracts of land, stretching for miles along the river's brim, entire fields presented a deep reddish-brown aspect from its profusion of growth, and among which the *Oxalis stricta* also frequently were seen to occur — another extremely acid plant. This led me for a time to reflect on the subject, in order to assign a probable cause for this profusion of growth, and the effects thus produced; and soon after — upon a closer inspection of the soil — came to the conclusion that it must proceed from an extreme acidity of the land upon which they grew. Common sense at once suggested the simple remedy, an alkaline substance; and among the materials, lime alone the article sufficiently capable of accomplishing the object desired.

"Lime is not a fertilizer, as is generally supposed, but an ameliorator of the soil, neutralizing any acidity it may contain, and properly preparing it for the reception of the most appropriate manures. J.E."

"Dessicated milk" is a rather long article, signed "J.E.," in the column called "Science and Art." I suspect it was not, at least in any essential part, written by Eights. A short abstract is given.³²

"In this age of inventions we may regard those as really beneficial which supply a positive want, and do not merely obviate an inconvenience, or are only auxilliary or helps to that which, after a fashion, is already compassed." Natural milk quickly loses its fresh qualities when exposed to the air. There is some discussion of milk's constituents and their use in making butter and cheese. On long sea voyages, especially, milk used to be available only if a cow were kept, but then a process for making water-

soluble cakes of dried milk was patented in England. This had more recently been improved by a process that ended with cakes being crushed, powdered, and bottled. As a substitute for milk, it enjoys some popularity and its price is moderate. "If the flavor and effect upon tea and coffee are not precisely the same as new milk, it detracts nothing from the utility of the manufacture, inasmuch as a good substitute for the genuine and fresh article is all that can be expected; and this it certainly is."

"Hydra viridis — (*Found in our city waters.*)" is a two-part article that seems to have been written in part by Eights. He probably prepared the introductory paragraph, with the bulk of the rather long piece having been adapted from the literature.³³

"Should an intelligent individual, at any time during the summer months, take a leisurely stroll over the pine plains in the neighborhood of our city, and bestow some little attention to the stagnant pools and ditches by the way-side, he will, with but little difficulty, be enabled to find such diversion, and no small amount of instruction, merely by observing the various habits and structure of the many polypenous animals which so profusely abound therein; and should he be so disposed, to make a collection of the common duck-week, or any other of the small aquatic plants which are there to be found, and place them in a wide-mouthed glass vessel filled with some clear, cool water, then allowing them to remain there undisturbed for a few hours, he will doubtlessly be highly delighted by observing the numerous aquatic animals belonging to the genus Hydra, that are there to be seen closely adhering to the sides of the vessel and along the roots and stems of the various plants which it contains, but so small in their dimensions as to require the aid of a magnifying power to cleverly watch their movements. The common species appears to be the *Hydra viridis*, and may frequently be met with profusely distributed throughout the waters which supply our city." The author then describes the tiny creature, like "a bit of green sewing thread about the sixth of an inch in length," and refers to its somersaulting method of locomotion, as well as its moving along the under side of the water surface film. It

is a voraciously carnivorous animal and "when any wandering animal infringes upon its arms, it is immediately arrested, and becomes motionless as if benumbed....What power the arms of the Hydra possess it is difficult to conjecture; its effects are like the sudden shock of electricity, for the animal under the influence of its potent shock, seems motionless and sinks, to die, or only after the lapse of some time recovers itself."

There follows a long account of interesting observations on Hydra made by an author named Trembley. The essay ends: "Such is but a small portion of the history of our modern Hydra, and though so wonderful, it is not more than that of hundreds of other minute animals which inhabit the same water that it does; nay, every drop in our glass jar is crowded with them, as revealed by the microscope."

Three articles were signed by "J.E." in the *Country Gentleman* for the first half of the year 1866. Of these, only part of one seems definitely to be by Eights.

"On the formation of peat," in "The Naturalist" column, is actually two articles, one being the nominate essay, the other entitled "Uses and value of peat." The initials "J.E." appear only at the end of the second piece but only the first part seems likely to be Eights's work.³⁴

In the first part, "On the formation of peat," the Eightsian account runs as follows. "Being requested by a friend, to accompany him on a visit to the town of Pawlet, in the county of Rutland, Vermont, for the purpose of examining an exceedingly interesting, and very extensive accumulation, of that highly useful article termed peat, contained therein. It was to be seen on the well conducted grounds of C.S. Bardwell, Esq., situate about one mile to the eastward of the station village of Pawlet; and the entire farm containing about 400 acres of well cultivated land. Nearly through the centre of this valuable tract runs the Washington and Rutland Railroad, closely bordering on the separating line of the States of New-York and Vermont. This peat formation is very extensive, spreading over about 50 or more square miles of marshy ground, and lies entirely in the former State. The floor, which constitutes this extensive deposit of peat,

appears to be very irregular, and undulating in surface, giving a thickness of well characterised material measuring to the depth of from three to thirty feet; poles having been sunk in the mass for some twenty or more feet without finding bottom. This is no doubt a very valuable deposit of this useful substance....

"Peat bogs of this nature are exceedingly common in all our northern state, but seldom of so great an extent as that here developed; and their origin may, without much difficulty, readily be explained. In most cases where clays have been profusely spread over gravel or fragmentary rocks, and the waters of many floods or springs are prevented from escaping, stagnant and muddy pools are formed, around the borders of which aquatic plants are found to accumulate, and, from time to time, gradually to creep in towards the deep centre. Mud having been now accumulated around these roots and stems, a spongy, semi-fluid mass is produced, well adapted to the growth of moss, which, together with the numerous stems of sphagnum, which then so luxuriantly thrive, these vegetables readily absorb large quantities of water, and continue to shoot out new plants above, while the old are rapidly decaying and being compressed into a solid mass below. In this simple manner the water is replaced by vegetable matter, and the marsh filled up; while the central or moist portion, growing more rapidly, gradually rises above the edges, until the entire surface has attained an elevation sufficient to discharge the surface-water, and flood the adjoining lands. But the extent of these bogs depends greatly on the nature of the rock below. On a quartz bottom they are generally shallow and small; and on a rock which by its decomposition yields a clayey material, as is here the case — the strata being of an argillaceous nature — they are of the greatest depth and extent. As the plants which form the turf are in different stages of decomposition, the aspect and constitution of the bog vary greatly; near the surface it is light colored, spongy, and contains the vegetable material but little altered; at some considerable depth it is brown, denser, and in a more advanced state of decomposition; while at the base of the bogs, some of which are

from twenty to forty feet deep, the turf is black, nearly as dense as coal, and coming near that substance in chemical composition."

The second part, "Uses and value of peat," seems pretty much digested directly from an earlier author, retaining his syntax and writing style.

"Peat and its mode of working," although signed "J.E.," seems to me to have originated as the second part of the former article did: by direct reworking from a previous author.³⁵

"Glycerine" is signed "J.E." and some introductory and summary sentences may be by Eights; it is mainly an enumeration of the many characteristics and useful features of this cheaply made and common substance, with its physical inertness at high and very low temperatures, its lubricating capacities, its solvent properties, and its pleasant taste and harmlessness in alimentary use.³⁶

Except for an account of old Albany's pinkster festivities, there were no more articles of interest to us in the two volumes of *Country Gentleman* in 1866. Since the pinkster articles are definitely the work of Eights, I have put them with his account of a visit to the Pennsylvania coal fields very late in 1869 to end the decade of the 1860s. The remaining "J.E." essays, in 1867 only, are dubiously by James Eights, and are treated below. "Glycerine" continues a technical commentary on this substance, in reply to the desire of a correspondent; despite its being signed by "J.E.," there is nothing to indicate that it was really written by Eights.³⁷

"Unfermented bread" is in a column entitled "Domestic Economy and Cookery." Part of it, as explanation for the need for this chemically risen bread, seems straight out of the age of quackery, a condition that Eights often deplored in medicine, and it ends with recipes drawn from named sources. Even if by James Eights, in whole or in part, it is of no great moment.³⁸

In regard to "unfermented bread," it is written: "As this highly nutritive article of diet is fast coming into almost universal use in our large cities....a few remarks on some of its advantageous qualities, may not prove unacceptable to many of your readers, and greatly beneficial to all.

"In the first place, this quality of improved bread is easily made, requiring but little labor; no kneading becomes necessary, nor time required for the dough to rise. It costs but a trifle more than the ordinary bread made with yeast, and has the superior advantage of keeping for a much greater length of time without becoming mouldy or sour. ...

"Its dietetic properties are of the utmost importance. Common bread, in weak stomachs, is very liable to turn sour, producing heartburn and flatulency, and to aggravate cases of dyspepsia; but, when manufactured by this improved process, it is altogether free from these baneful effects. Its daily use...in many cases...corrects that morbid condition of the stomach and intestines....It is useful in assisting to restore the biliary, and especially the renal secretions to a healthy condition, as well as in the treatment of various cutaneous eruptions originating in disorder of the digestive function."

Whether by Eights or not, the subject of bread, self-rising and other, was in the air. A. Babcock, in "Unfermented bread," objected to the use of "soda, ammonia and acid" of the "J.E." article and presented a preferred recipe from "Dr. Trall's 'Gospel of Health.'" Then, "J.E." himself returned to the subject of bread, this time not to its method of rising but to the use of whole versus refined flours. In "White and brown bread," it appears possible that Eights may have sifted publications for his information and then written a covering paragraph. Its main argument is the familiar old account of whole-wheat flour in preference to the refined white flours that had so thoroughly gained favor among cultivated but, he thought, ill-informed tastes.³⁹

"Principles of water color painting with practical hints," in "The Fireside Department," is signed by "J.E." It is the only essay in volume 30 (second half of 1867) so signed. If it is by Eights at all, which I doubt, he simply picked his facts from other authors, not from his own experiences. So far as I can determine, he himself painted no such landscapes as he describes.⁴⁰

These scattered essays, signed merely "J.E.," and mostly dubiously by James Eights, did not quite end the decade of the 1860s for him. Two

works were decidedly from his hand. They make up the next chapter.

NOTES

1. AI Minutes, 29 January, 17 April, 28 May 1861. Hall was, in fact, whistling in the graveyard, for at that time some important determinations were being made that, in a measure, sustained Emmons's viewpoint; see J. Marcou on the Taconic System, 1885, pp. 190-193, and my notes on Emmons in a previous chapter.

2. However, what got recorded in the AI Minutes and what did not requires evaluation. Some notes, called *Proceedings*, were published from time to time and they were frequently fuller than the Minutes.

3. AI *Transactions*, vol. 6, "Proceedings...1863...1865," pp. 265-266.

4. AI Minutes, 22 March, 19 April 1864. I find no evidence that Charles H. Anthony (d. 1874) ever published his memoir of Eaton. Willard wrote widely on Albany County doctors, including Jonathan Eights. William Bay, born in 1773, died in 1865.

5. AI Minutes, 4 January, 5 March, 13 December 1865. There is a long abstract of Joel Munsell's history of theatres and public entertainment. Dr. Hough's report on reprinting of volume II is long and detailed. Historians of publishing will find the costs instructive. Preparation of a new plate, with no plate to engrave from, would cost about \$7.00 — new impressions would cost two and a half cents each. To replace the scratched plate would cost \$5.00 and impressions from it three cents each.

6. AI Minutes, December 1865; 20 February, 14 November, 3 December 1866; 7 January 1867; 8 February 1868. Why no catalogue of the Beck herbarium was delivered to James Hall for the State Cabinet is not clear; if one was, it is stranger still that the herbarium was not checked for completeness.

7. AI, Minutes, 7 January, 4 February 1867. It was pointed out that any collections added to the State Cabinet would be simply added to those already present, with only a catalogue entry to denote provenance. The state collection itself suffered from over-growth, poor curation, and lack of staff but perhaps infusion of material from the Institute would spur legislative interest in providing more financial support. No guarantee, however, could be made that the State Cabinet would remain in Albany. The final decision was to have James Hall offer the Institute cabinets to the state, provided that curatorial services were provided and provided that material would revert to the Institute if the State Cabinet were removed from Albany.

8. Eights, under the banner of "The Naturalist" (to which various writers contributed), wrote on the "New Chinese silk worm" (CG, 17: 194-195, 21 Mar 1861. It was signed Jas. Eights. F.E. Guérin-Méneville wrote many technical and popular articles on the Chinese silkworm moth (then called *Saturnia cynthia*). According to W.J. Holland's *Moth Book*, pp. 81, 82, the species was introduced into the United States in 1861, so great was the popular interest in it. Holland accounted the experiment a failure because no satisfactory method for reeling off the silk was found. For official interest in the matter, see John G. Morris, "The Ailanthus silk-worm of China"; and J.G. Morris,

"Additional observations on the Ailanthus silk-worm of China."

9. Signed, as are all in this series, by "J.E.," "Our songsters of summer [I]," appeared in CG, 23: 402, 23 Jun (received 13 Jun) 1864. I do not think I am unjustly dubious that these pieces were written by James Eights. Note, especially, that various people contributed to the column called "The Naturalist"; it was not a column invented by him. The writing has only a few of his pet words and phrases (such as "not unfrequently"). I do not mean to claim that it is better writing than Eights at his best. But it is different. There is a certain glibness — the right thing is said, the poetically correct species is praised. Whether the articles were smoothed out by an editor, whether Eights polished his delivery, whether he may have silently adapted some parts from previous writings, I cannot say. And, then, there are those interminable paragraphs, the Panglossian glow, that might well be Eights. At the moment, I rest my case uncertainly.

10. CG, 24: 18, 7 July 1864. He speaks specifically of the "Wood-thrush," so presumably had that species in mind. Words are poor tools for describing bird songs but part of the description seems less than characteristic of the wood thrush.

11. CG, 24: 34, 14 July 1864. In introducing birds, I have followed the author in capitalization (or not) and hyphenation of species names; in my comments, I tend to use approved spellings, without capitals. Nowhere in this series, unfortunately, are Linnaean binomials given for birds. Even though many would have changed since 1860, it would still be possible to document what species an informed ornithologist had in mind then. This is quite at variance with Eights's habits in former years, with reference to plants and insects. Perhaps their absence was due to editorial fiat; perhaps it is additional evidence that the articles were not written by Eights.

12. I leave to the reader to provide a concordance for "warble of exquisite sweetness," and "shrill and tender lay." The song is, in fact, rather prosaic, conversational and unmusical; otherwise, the characterization is apt. My impression is that the author picked some of his subjects from among names that *implied* song — nowhere more than in the case of the song sparrow!

13. CG, 24: 50, 21 July 1864. Correlations between songs of warbling vireos and purple finches show the author to be an astute ornithologist, even though I certainly do not perceive the song of the vireo as surpassing "the tenderest airs of the flute" and I think his account of red-winged blackbird song a hodgepodge of blackbird noises (rusty, grackle and redwing), not just the redwing's. Considering the charges made by early English travelers in America that songbirds were uniformly uncommon, one might be surprised by the first statement in the essay. He does not otherwise document his claim that tropical birds sing abundantly.

14. J.E., "Honey and the honey bee," CG, 24: 82-83, 98, 4 and 11 August 1864; one statement is worthy of notice, for one would wish that Eights were its author: "The lamentable manner in which so useful an article as honey has been adulterated in other countries, has not, we believe, yet been put to practice in this our own, and we think it would, at present, be highly improper here to mention the materials used, and the processes employed, lest we might be considered instrumental in favoring the infamous prac-

tice now so common, and innocently add another to the list of impure substances which we are daily in the habit of consuming at our tables." That there *was* such an interest, see Anon., CG, 26: 383, 1865. In the department on "Domestic Economy and Cookery," we have a query in regard to "artificial honey": "Will you or some of your correspondences tell me how to make honey? I...shall be very much obliged for a recipe." The reply: "Dissolve seven pounds of common brown sugar in one quart of water. Mix in it two pounds of good strained honey, and stir in the eighth of an ounce of cream tartar. Boil a few minutes and skim, and as the editor of the *Apiculturist*...says — 'we presume you will have as good honey as you will make by any patent process offered you.'"

15. CG, 24: 114, 18 August 1864. Here we have a detailed account of bird migration as perceived at that time — allegedly from a man who in his *Zodiac* articles barely noticed the existence of any birds whatsoever. The point is that, whether you hold these views right or wrong, they were consonant with the best teachings of the day, highly sophisticated and of a piece. In general, a modern ornithologist of moderate knowledge will realize that the author's affirmations were without sufficient evidence, his speculations sometimes of the wild-eyed variety. I have quoted nearly all the article. Whether really by Eights, I leave the reader to decide.

16. CG, 24: 130, 25 August 1864.

17. CG, 24: 138-139, 154, 1 and 8 September 1864.

18. CG, 24: 178, 15 September 1864.

19. CG, 24: 194, 22 September 1864.

20. CG, 24: 211, 226-227, 29 September and 6 October 1864. The first part stands alone, the second part appears in the section called "The Fireside Department."

21. CG, 24: 236, 13 October 1864.

22. CG, 25: 242, 258, 13 and 20 April 1865.

23. CG, 25: 266-267, 27 April 1865. This issue is incorrectly given the volume number of "17." I have not been able to find any publications by the "Dr. Welsbach" who is credited with many elaborate experiments. As long ago as 1834, the editor of *American Journal of Science* (26: 193), Benjamin Silliman, had noticed corn husks as a potential source of material for paper-making.

24. CG, 25: 300, 11 May 1865.

25. CG, 25: 301, 11 May 1865.

26. CG, 25: 386, 402, 15 and 22 June 1865.

27. CG, 26: 75, 3 August 1865.

28. CG, 26: 114, 17 August 1865.

29. CG, 26: 130-131, 162-163, 24 August, 7 September 1865. I assume the author has simply suppressed the name of "one of the most eminent and learned professors of England," whose minute account is quoted — that is, that it was not taken from an anonymous article. The second part is entitled merely "Haschisch — No. II."

30. CG, 26: 146, 178, 210, 31 August and 14 and 28 September 1865. All parts are signed "J.E."

31. CG, 26: 235, 12 October 1865; it also appeared in the *Cultivator*, ser. 3, 13: 351, November 1865. The article is quoted in its entirety.

32. CG, 26: 322, 16 November 1865.

33. CG, 27: 338, 354, 23 and 30 November 1865. It is signed "J.E." and is in "The Naturalist" column.

34. CG, 27: 18, 4 January 1866.

35. CG, 27: 50, 18 January 1866.

36. CG, 27: 98, 8 February 1866.

37. CG, 29: 66, 24 January 1867.

38. CG, 29: 127, 21 February 1867. One of the recipes, "by Dr. Smith of Leeds," contains flour, sesquicarbonate of soda, sesquicarbonate of ammonia, salt, water and hydrochloric acid; the other, "the recipe of Mr. H. Deane," contains flour, bicarbonate of soda, hydrochloric acid, salt, water. One assumes this would produce a kind of soda biscuit or "lazy cake" affair — hardly a long-keeping loaf and one that would not be accounted edible today except

straight from the oven.

39. A. Babcock, "Unfermented bread," CG, 29: 159, 7 Mar 1867; J.E., in "The Fireside Department," CG, 29: 306, 9 May 1867.

40. CG, 30: 35, 11 July 1867. It is worth pointing out that on pages 173 and 292 of this volume, someone writing from Ohio — definitely not James Eights — signed his name "J.E."

PINKSTERFEST, PENNSYLVANIA COAL: THE END TO THE 1860s

I — PINKSTERFEST

James Eights treasured his memories of Albany. It is sad that we have no fuller account of them. Whatever notes he consigned to Benson J. Lossing in regard to old Albany were shamelessly prettified for the article in *Harper's* in 1857. Fortunately, his story of the folk celebration that has become known as Pinksterfest has been preserved. Even that account had its adventures, for its initial chapter has only recently come to light.

Eights had, in his memories of Albany a decade earlier, alluded briefly to the Pinkster festivities. In Lossing's pirated text, he told of St. Peter's Church, built in 1715, in the middle of State Street. The street, "since my recollection, passed up the hill on the south side of the church and fort, and in the rear of the latter it passed over Pinkster Hill, on which the State Capitol now stands."

"Pinkster Hill! What pleasant memories of my boyhood does that name bring up! That hill was famous as the gathering-place of all the colored people of the city and of the country for miles around, during the Pinkster festival in May. Then they received their freedom for a week. They erected booths, where gingerbread, cider, and apple-toddy were freely dispensed. On the hill they spent the days and evenings in sports, in dancing, and in love-making, to their heart's content. I remember those gatherings with delight, when old King Charley, a darkey of charcoal blackness, dressed in his gold-laced scarlet coat and yellow breeches, used to amuse

all the people with his antics. I was a light boy; and on one occasion Charley took me on his shoulders and leaped a bar more than five feet in height. He was so generously 'treated' because of his feat, that he became gloriously drunk an hour afterward, and I led him home just at sunset. When I look into the State Capitol now when the Legislature is in session, and think of Congress Hall filled with lobbying politicians, I sigh for the innocence of Pinkster Hill in the good old days of the Woolly Heads."¹

Late in the year 1866, the *Cultivator & Country Gentleman* (which I have called the *Country Gentleman*), in its "Fireside Department," carried a three-part article entitled "Pinkster festivities in Albany 60 years since." Its first installment was signed "E.," as was the second part a week later; it was not until the end of the third installment that the work was credited to the more familiar "J.E."²

That Eights was the author cannot be doubted. The writing is vintage Eights. It was a subject near to his heart. We also have the word of Joel Munsell, editor, member of the Albany Institute, author and younger Albany contemporary of Eights: "The following account of the Pinkster jubilee...was written by Dr. James Eights, as the recollections of what he witnessed in his youth, when the custom was at its zenith."³

First, the original article is reproduced in full. It is followed by explanations and comments on historical parallels.

PINKSTER FESTIVITIES IN ALBANY 60 YEARS SINCE.

A long time ago, when the fields were yet green, where now stands the most beautiful portion of our ancient city, and the old Dutch Church bell gave the only sounds which broke upon the stillness of a Sabbath morn, and when our pious ancestors were to be seen on that then venerated day, slow and decorously wending their way, with solemn steps, towards that sacred edifice — now almost faded from the memory of the oldest inhabitant — then it was that the humane idea first awoke in their unsophisticated minds to give freedom to the slave, and also to grant free indulgence to all their frolicsome humors for the space of one entire week, during each successive year. The time selected for this pleasing festival was about the middle of May, the early month of birds and flowers, when nature is everywhere clothed with its brightest vesture of green, and all the air filled with fragrance and melody. This jubilant week was to be designated as the Pinkster Holidays. From whence this euphonic name was derived, we never could satisfactorily determine, nor is it necessary here to be informed; suffice it to say, it no doubt was of pure Dutch origin, or it would never have been selected by our erudite forefathers. All that we care for at present is to consider that it was a time oft to be remembered in joyous anticipation by the schoolboy at his task, as well as the veriest idler along the streets; and well do we remember in those days of childish simplicity, after the Christmas carols were passed and over, and the remembrance slowly fading from our immature minds, the many happy, vacant hours we spent in contemplating the various pleasures to be enjoyed, on the arrival of the oft-wished for and slowly approaching event; and how often it became the theme of our evening gossip, when in bed, and e'er [= ere] our eyes had closed in the slumbers of the night — those happy days, when all was joy and sunshine, long e'er the hand of care had drawn its slightest trace upon the brow, or cast its faintest shade over the pure warm feelings of the heart.

It was thus early, in the progress of our renowned city to its present commercial and

mechanical prosperity and greatness, that the Pinkster festival was first instituted by our worthy ancestors; and the celebration by the slave population was for a long time unremittingly kept up, until the final decree was passed which forever terminated the barbarous custom of slavery in our State. Some few feeble attempts were afterwards made to its [that is, the festival's] revival, but the spirits which gave animation to the scene had long since departed, and, in the natural course of things, it soon perished from all memories save those of a numbered few. Our first remembrance of these festivities was some sixty years since, when we were but a breechless lad, short gown and petticoats being the fashion of the times for urchins such as we. The ground selected for the ceremonies on that occasion was where the State Capital now stands, the surface of the plain, at the time, being elevated to some fifteen or twenty feet above the present level of the park, and composed chiefly of blue clay, with a thin covering of yellow sand, which, in turn, maintained a stunted growth of faded green grass.

The customary ceremonies of these great gatherings consisted chiefly of friendly greetings, unrestrained sociability, and old wives' tales among the aged; and jovial frolicking, with dancing to their hearts' content, among the young; innocent games, and various other simple amusements, and sometimes, near the close of the week, a goodly display of dotted eyes and bloody noses, as a final conclusion to the Pinkster festival enjoyments.

For several days preceding the occurrence of one of these great events, the entire household population, from the youngest to the elder, were then to be seen 'with their hands full,' to use their popular phrase, eagerly striving, one with the other, which should excel in the busy employment of preparation. There were the dresses to be cut and made, and old garments to be renewed, and appropriately adjusted to the female portion of their sable dependents. Spruce beer to be brewed and bottled, and pastries of all kinds to be made, from the characteristic 'doughnut' and 'oley-cook,' through all the varying gradation of housewife's contrivances up to the well frosted and lordly plum cake; all these, beside

many other dainty luxuries, gave ample enjoyment to all their leisure hours, until the week closed in upon their benevolent labors, with the appearance of Saturday night. Nor was the master of the domicil alone to remain a quiet spectator of the busy scene. He, too, had his portion of the duties to perform, which consisted of furnishing the materials needed for the construction of the booth, or rude tent-like structure, beneath which the tables were to groan and labor under the weight of the many choice dainties presented by the mistress and daughters of the dwelling. And this was cheerfully complied with by the worthy man, and the duties of erecting the so transient buildings were willingly performed by the male slaves of the mansion, and by them was the master even held in grateful esteem, for the kindness shown them on the occasion.

Nor on this glorious Pinkster jubilee was the excitement confined to the city limits alone, but from the neighboring towns and farm houses around, every tenement sent forth its compliment [!] to participate on this happy occasion, and which likewise enabled this portion of their slave population to visit and hold friendly converse with their numerous friends and relatives in the city; and, with that good old-fashioned hospitality so peculiar to the 'burgers of the time, their doors were always open for their reception as long as the days of festivity lasted. The last few days preceding this grand event, all the public highways and by-paths through the woods leading cityward, might be seen thronged with happy faces, some on loaded wagons, but most of them on foot, all dressed in their Sunday best, and to the eye of a spectator presenting a scene of merriment and enjoyment that seldom or ever was seen before. E. [Part II follows.]

Bright and beautifully broke the morning that ushered in the first great day of the Pinkster jubilee. The air was filled with melody, and the purple hued martins, from their well provided shelter against the walls, or from the far-projecting eaves of many antiquated mansions, were chattering with noisy garrulity, as if in thankfulness for having been brought safely through the night to witness the light of this new-born day. The lilacs in the garden around were everywhere redolent with sweet smelling odors, while the

pink blossomed Azalias [!] from the neighboring plains fairly saturated the bright morning air with their ever-delicious fragrance. But, within doors, all was bustling commotion, nor did the overjoyous little ones, with their merry, gleesome mirth-ringing music to the ear, contribute greatly to quell these conflicting tumults within, and bring peace and order to this bewildering scene; but at every turn, where'er you went, you would be sure to encounter some one or more of these juvenile prattlers, frisking about with various garments on their arms and sometimes strewing them in wild dismay, all over the chamber floor, calling lustily for aid to adjust them in their befitting position; nor could a frown or even a scolding tongue for a moment quiet them in their noisy vociferation and frolicsome glee.

Quiet in some degree was at length restored to the household. The younger members of the family — both white and colored — had peacefully submitted to the process of cleansing, and were now tastefully adorned in all their varied finery, with numberless small coins merrily jingling in their ample pockets, seemingly keeping time to their sprightly movements, as well as to the silvery music of their mirthful voices. To witness this scene of innocent delight was a pleasing sight to all, and caused the bright eye of the mother to sparkle with pride, and her affectionate heart to expand within her bosom.

Under the careful guidance of a trusty slave, forth we were ushered into the densely thronged streets, and never shall we forget the scene of gayety and merriment that there prevailed — joyous groups of children, all under the protecting care of some favorite old dame or damsel, gayly decorated with ribbons and flowers of every description, blithely wending their way along the different avenues that led to the far-famed Pinkster hill — and long before we reached the appointed place of rejoicing, were our ears greeted with the murmuring sound of many voices, harmoniously intermingled with the occasional shout of boisterous mirth, and when we arrived on the field we found the green sward already darkened by the gathering multitude, consisting chiefly of individuals of almost every description of feature, form and color, from the sable sons of Africa, neatly attired and

scrupulously clean in all their holiday habiliments, to the half clad and blanketed children of the forest, accompanied by their squaws, these latter being heavily burdened with all their different wares, such as baskets, moccasins, birch-bark, nick-nacks, and many other things much too numerous for us even here to mention, and boys and girls of every age and condition were everywhere seen gliding to and fro amid this motley group.

The Pinkster grounds, where we now found ourselves comfortably provided for in a friendly booth or tent, securely protected from the pressure of the swaying multitude without, gave us a most convenient opportunity to inspect the place, and witness at our leisure the entire proceedings of this tumultuous mass of human beings, as they passed in disorderly review before our eyes. The grounds were quaintly laid out in the form of an oblong square and closely hemmed in with the rude buildings on every side save one, and this was left free, so as to give entrance and freely to admit the crowd. Beyond this square, and in the rear of all the tents, were to be found the spaces appropriated to the various exhibitions, such as of wild animals, rope dancing, circus riding, and the playing ground of all simple gaming sports. Here might be seen, for a moderate pittance, the royal tiger of Bengal, and the lordly lion from Africa, with a monkey perched over the entrance door, profusely provided for by the young and children of the white population; and much did these little ones enjoy themselves in witnessing the wonderful agility with which this diminutive satire on man caught the numerous cakes and good things thrown within his reach; and then there was Mademoiselle Some-one, with a hard, unpronounceable name, to perform amazing wonders on the slack rope; and in the next enclosure, was Monsieur Gutta Percha, to ride the famous horse Selim, and throw a somerset through a blazing hoop, attended by the great Rickett, the celebrated clown of the day, to display his stock of buffoonery on horseback, and break his neck, if necessary, to afford the amplest satisfaction to the assembled auditors.

Thus passed the first day of the Festival, merry enough, no doubt, but, being considered

vastly ungenteel for the colored nobility to make their appearance on the commencing day, we must defer our more minute details of the ceremonies until the approaching morrow.

The morning sun rose again as beautifully over the smiling landscape as on the preceding day, and cast a cheerful glow of animation over everything around; the excited youngsters, too, were all awake at the early chirping of the birds, and with their silver-toned voices gave a lively chorus to the surrounding scene. After the preliminary preparation, as on the previous day, each was again attired in an appropriate manner to re-visit the festal meeting at the usual hour. Early again the crowd were assembled, fully prepared to enter with pleasurable feelings into all the exciting events, as they from time to time should transpire; but far more circumspect were they, and orderly in their demeanor, as all the more respectable members of the community were there to witness any discreditable act, and ever afterward be sure to reward the transgressors with their most severe indignation and contempt.

The master of ceremonies, on this occasion — Beau Brummel of the day — was Adam Blake, then body servant to the old Patroon, and a young man in all the grace and elegance of manner, which so eminently characterized his progress through life until his dying day; to him was unanimously entrusted the arduous duty of reducing to some kind of order this vast mass of incongruent material, which his superior ability soon enabled him to accomplish with complete success.

The hour of ten having now arrived, and the assembled multitude being considered most complete, a deputation was then selected to wait upon their venerable sovereign King, 'Charley of the Pinkster hill,' with the intelligence that his respectful subjects were congregated, and were anxiously desirous to pay all proper homage to his majesty, their King. Charles originally came from Africa, having, in his infant days, been brought from Angola, in the Guinea Gulf; and soon after his arrival became the purchased slave of one of the most ancient and respectable merchant princes of the olden time, then residing on the opposite bank of the Hudson. He was tall,

thin and athletic; and although the frost of nearly seventy winters had settled on his brow, its chilling influence had not yet extended to his bosom, and he still retained all the vigor and agility of his younger years. Such were his manly attributes at this present time.

Loud rang the sound of many voices from the neighboring street, shoutingly proclaiming the arrival of the master of the revels, and soon the opening crowd admitted him within their presence, and never, if our memory serve us, shall we forget the mingled sensations of awe and grandeur that were impressed on our youthful minds, when first we beheld his stately form and dignified aspect, slowly moving before us and approaching the centre of the ring. His costume on this memorable occasion was graphic and unique to the greatest degree, being that worn by a British brigadier of the olden time. Ample broad-cloth scarlet coat, with wide flaps almost reaching to his heels, and gaily ornamented everywhere with broad tracings of bright golden lace; his small clothes were of yellow buckskin, fresh and new, with stockings blue, and burnished silver buckles to his well-blackened shoe; when we add to these the tri-cornered cocked hat, trimmed also with lace of gold, and which so gracefully sat upon his noble, globular pate, we nearly complete the rude sketch of the Pinkster King. E. [Part III follows.]

The greetings were at length over, and the hour of twelve having arrived, peace and tranquility had once more been partially restored to the multitude; his majesty, the King, was in the midst of his assembled friends and subjects, and the accomplished master of the ceremonies, with his efficient aid[er]s were busily employed in making the necessary arrangements to commence the festivities with zeal and earnestness; partners were then selected and led out upon the green, and the dancing was about to commence.

The dance had its peculiarities, as well as everything else connected with this august celebration. It consisted chiefly of couples joining in the performances at varying times, and continuing it with their utmost energy until extreme fatigue or weariness compelled them to retire and give space to a less exhausted set; and in this successive manner was the excitement kept up

with unabated vigor, until the shades of night began to fall slowly over the land, and at length deepen into the silent gloom of midnight.

The music made use of on this occasion, was likewise singular in the extreme. The principle instrument selected to furnish this important portion of the ceremony was a symmetrically formed wooden article usually denominated an "eel-pot," with a cleanly dressed sheep skin drawn tightly over its wide and open extremity — no doubt obtained expressly for the occasion from the celebrated "fish-slip" at the foot of the Maiden's Lane. Astride his rude utensil sat Jackey Quackenboss, then in his prime of life and well known energy, beating lustily with his naked hands upon its loudly sounding head, successively repeating the ever wild, though euphonic cry of Hi-abomba, bomba, bomba, in full harmony with the thumping sounds. These vocal sounds were readily taken up and as oft repeated by the female portion of the spectators not otherwise engaged in the exercises of the scene, accompanied by the beating of time with their ungloved hands, in strict accordance with the eel-pot melody.

Merrily now the dance moved on, and briskly twirled the lads and lasses over the well trampled green sward; loud and more quickly swelled the sounds of music to the ear, as the excited movements increased in energy and action; rapid and furious became their motions, as the manifold stimulating potions, they from time to time imbibed, vibrated along their brains, and gave a strengthening influence to all their nerves and muscular powers; copiously flowed the perspiration, in frequent streams, from brow to heel, and still the dance went on with all its accustomed energy and might; but the eye at length, becoming weary in gazing on this wild and intricate maze, would oftentimes turn and seek relief by searching for the King amid the dingy mass; and there, enclosed within their midst, was his stately form beheld, moving along with all the simple grace and elastic action of his youthful days, now with a partner here, and then with another there, and sometimes displaying some of his many amusing antics, to the delight and wonderment of the surrounding crowd, and which, as frequently, kept the faces

of his joyous multitude broadly expanded in boisterous mirth and jollity. And thus the scene continued until the shades of night and morning almost mingled together, when the wearied revellers slowly retired to their resting places, and quickly sought their nightly repose.

Morning again returned with all its renovating influence, when most of the sable throng were seen loitering along the streets toward the accustomed field of sports; and the bright day moved merrily onward to its close, with all the happy enjoyments of that which had preceded it; and long ere the night had again arrived, the upper class of revellers had left the ground to seek entertainment elsewhere, or spend the evening in tea-party gossip, among their numerous friends and visitors. And thus terminated the third day of the Pinkster Festival.

On the succeeding fourth and fifth days, the grounds were left to the free enjoyment of the humbler classes, and well did they improve the time in joyous merriment until near the close of the latter, when, instigated by the more potent draughts they swallowed, speedily brought on wrangling discord, quickly succeeded by rounds of fighting, bruised eyes, and bloody noses unnumbered, big Jack Van Patten, the city bully, being unanimously declared the champion of the lists, having successfully overthrown all his numerous opponents.

The last day of the week, and also of the Pinkster revels, was chiefly occupied in removing the unpurchased materials from the field, and also in the distribution of the remaining vestiges of the broken meats and pastries to the poorer classes of individuals who still lingered about the now almost abandoned ground of rejoicing. Some few liquoring establishments still continued their traffic, being amply patronized by the more rude and belligerent number that yet remained, as if loth to leave the endearing spot as long as a stimulating drop could there be procured.

The following sabbath was literally considered by them as really a day of rest, and mid-day's sun was at its height e'er many awoke from their refreshing slumbers, and the succeeding day found the numerous visitors joyfully journeying toward their respective homes. Our

ancient city was at length again left to its usual quietude, and all things within its confines soon became properly restored to its accustomed routine of duty and order. And thus ended the Pinkster holidays, with all its rollicking festivities. J.E.

Thus, Pinkster Festival, according to James Eights. Both commentary and supplement are in order.

"This great festival of the negroes when slavery existed in the state, and when every family of wealth or distinction possessed one or more slaves," wrote Joel Munsell shortly after Eights's account appeared, "took place usually in May, and continued an entire week. It began on the Monday following the Whitsunday or Pentecost of the Catholic and Episcopal churches, and was the carnival of the African race, in which they indulged in unrestrained merriment and revelry. The excesses which attended these occasions were so great that in 1811 the common council was forced to prohibit the erection of booths and stalls, the parades, dances, gaming and drunkenness, with which they were attended, under penalty of fine or imprisonment; and being thereby deprived of their principal incitements and attractions, the anniversary soon fell into disuse, and is therefore unknown to the present generation." Eights's account, says Munsell, described it "in his youth, when the custom as at its zenith. Pinkster hill, the scene of these celebrations, was the site of the Capitol, before the hand of man was stretched forth to pull down that eminence. Afterwards it was held at various places, but on the death of King Charles, it was observed with less enthusiasm, and finally sank into such a low nuisance as to fall under the ban of the authorities."⁴

Actually, James Eights may have been aware of a versified account of the Pinkster Festival that was published while he was the merest child. It was: *A / PINKSTER ODE / FOR THE YEAR 1803. / MOST RESPECTFULLY DEDICATED TO / Carolns Africanns, Rex: / KING CHARLES / Captain-General and Commander in Chief / of THE / PINKSTER BOYS. / BY HIS MAJESTY'S OBE-DIENT SERVANT, / ABSALOM AIMWELL, ESQ. / [device] / ALBANY: / Printed Solely for the Pnrchasers and Others. / 1803.* It is an exceedingly

rare pamphlet of 12 pages and has been reproduced by Geraldine R. Pleat and Agnes N. Underwood, who call it “perhaps the earliest description of a folk festival in the United States.” According to these authors, “On the day following Pinkster (Pentecost or Whitsunday) the Negroes of Albany held revels on Pinkster Hill, the approximate site of the present State Capitol. Gradually the celebration extended far into the week until in April of 1811 the Common Council of Albany passed rules aimed at ‘boisterous rioting and drunkenness,’ — rules which were the knell of the Pinkster holidays with their African folk dances. King Charley, the great Negro drummer and master of ceremonies, died in 1824, when he was said to be one hundred and twenty-five years old....Folklorists and historians will be interested also in the other members of the crowd which swirled around old Charley, but it is to be remembered that those who *danced* on Pinkster Hill were Negroes and nearly all of them slaves.” They point out: “Slavery in the State was not completely abolished until 1827.” “The whites,” they argue, “were spectators.”⁵

One gathers from Absalom Aimwell’s doggerel verse that the music may have been more varied than Eights recalled: Aimwell mentions banjo, drum, pipe and tabor, flute and fife, a hundred fiddles, the Jew’s-harp. Racial lines were more sharply drawn, national stereotypes (French, Dutch, English, German, Yankee, Irish, Scots, oddly, even Welsh — surely friend Aimwell was Welsh!) bolder than Eights intimated. Anti-slavery sentiments were openly espoused, politicians held up to ridicule, windy tellers of tales allowed only their brief moment on the stage.

And, along with this, there are not-so-subtle hints that, however African its roots, Pinksterfest was one with the age-old, worldwide spring Feast of Beltane. One can imagine the proper burgers of Albany being a bit queasy at:

“Of Pinkster, who presumes to sing, / Must homage pay to Charles the King: / For Charles, like Israel’s mighty Saul, / Is nobly born, well made and tall. / But Charles, like Saul, was never found / With naked people on the ground, / Dreaming about his father’s asses; / No, no, King Charles dreams of the lasses.”

And lads and lasses there are, little spared by the poet’s sharp eye.

Nowadays, one might imagine prosaically enough that the festival took its name from the time of blooming of the local deciduous rhododendron, the pinkster (or pinxter) azalea. Eights did mention the flower and its pervading fragrance. In a similar manner, the early spring flowering of the shadblow or Juneberry in New England marked the visit of traveling preachers to outlying country areas, after the long winter when such traffic was difficult. At such a time, it is said, mass services were held for all who had died during the past months — hence the common name of “Service Berry” (so well known that it has been dialectically altered into “sarvice-berry”). However, it seems that although American blacks adopted the jubilee as their own, it began in seventeenth-century Albany with the Dutch in observance of Pentecost, *Pingsterdag*. Perhaps it was an older festival of the renewal of spring not very different from May Day on the one hand or Mardi Gras on the other — the timing depending more on the latitude and when spring arrived than on religious dates assigned to it at a later time.⁶

In any case, as Munsell wrote, by the middle of the century, Pinksterfest was hardly even a memory in Albany. The steadying hand of the law was evident. To some extent an effort had been made to transfer the ancient celebration (and its even more ancient social mores) to a purely secular observance. For example, in 1828, in honor of the first anniversary of freedom within New York State for “Descendants of Africa,” there was a parade and procession in Albany. In 1830, it was called the “African celebration,” as it was in 1831. Over the years (from about 1813), I find no reference in the Albany *Argus* to any such thing as Pinksterfest, despite a continued notice of these later celebrations of “African” freedom and, everywhere, faithful notice of every meeting of the Dutch St. Nicholas Benevolent Society, the St. Patrick Irish celebrations, and the occasional notice of activities by the Caledonian (Scottish) Society.⁷

II — PENNSYLVANIA COAL

The decade of the 1860s ended with “Prof. James Eights of the City of Albany” making a report to owners of the Sullivan and Erie Coal and Railroad Company of Pennsylvania. His report exists in an Albany imprint dated 1869 and as part of a New York imprint of 1870. Eights’s report is identical in content in both versions.⁸

REPORT UPON THE MINES AND RAILROAD OWNED BY THE SULLIVAN AND ERIE COAL AND RAILROAD COMPANY OF PENNSYLVANIA.

By Prof. James Eights, of the City of Albany.
/ REPORT. / To E. Evertsen, / Banker, Albany,
N. Y.:

Sir — In compliance with your request, I accompanied the visiting party, consisting of Samuel Moffatt, James Milwain, and William Russell, well known residents of this city, to the recently developed *Coal Fields* belonging to the company you respectfully represent, situated in the town [that is, township?] of Sullivan, in the county of the same name; passing through one of the most fertile valleys in the Pennsylvania State, until our arrival at the thriving village of Dushore, five miles from thence, soon brought us to the mines. The entire distance from Towanda, the contemplated termination of the company’s road, being twenty-nine miles, in a southwesterly direction.

In approaching the place, notwithstanding the inclemency of the weather, and the depth of snow that everywhere lay over the land, no difficulties presented themselves to prevent the spectator readily to preceive [perceive] the wonderful advantages of the location, in facilitating the mining operations of the place. The slopes of the mountain presenting themselves sufficiently abrupt to afford the most favorable opportunities for an adit-level entrance, anywhere along the circumference of its boundaries, and the finely compact and durable sandstone, which forms the roof of the mammoth coal bed, with its continuous and perfectly horizontal position,

exhibiting a natural terrace, in such a manner as to serve as a reliable guide to the Mining Engineer, whenever it becomes necessary to make any new opening anywhere upon the lands.

This entire tract of land in possession of the company is everywhere densely clothed with forest trees of primeval growth, exhibiting but little or sparingly scattered undergrowth of shrubbery, consequently the maturing action of the winds and rain has [‘have’ has been incorrectly inserted, probably by the author’s hand] at all times had free access to, and circulation among the numerous branches, causing the most perfect development of forest scenery that the eye delights anywhere to witness. Scarcely a deformed stem was at all visible in any direction, all were of symmetrical form, rearing their branching tops, or finely attenuated spires to nearly one-hundred feet in height, in a direct plumb line to the ground.

The useful timbers, which constitute the extensive forest, embraced in the company’s land, are chiefly of the most valuable nature, and may be readily applied to any of the economical purposes of life, some of these may be thus briefly enumerated, viz.: Of *Pines*, both white and red, some of them of sturdy growth, usually attaining a diameter of from three to four feet at the base; of *Hemlock*, there are two distinct varieties, white and red, both of which are capable of yielding large quantities of *tannic acid*, which may be used in the manufacturing of leather, whenever a demand for the article becomes necessary, and which, no doubt, will speedily be from the facilities afforded by the rapid increase of railroad progress in this highly favored district. *Maples* and *Beach* [beech] are everywhere common; and the white and black *Birches* abound [abound]; these latter afford the finest material for ornamental purposes, and particularly for panneling [!], as we had an excellent opportunity of witnessing at the newly erected Banking establishment at Towanda, the materials, with a commendable taste, having all been selected from the adjacent hills. *Cherry* of fine growth are quite numerous, and *Hickory* and *Black-walnut* of the most luxuriant dimensions were everywhere visible.

Besides these there were many other species, not necessary here to mention.⁹

The geological structure of the mountain mass, which inclose these coal beds are ['is' inserted] wonderfully simple and distinct; the entire formation holding its position in the lower portions of the great coal measures of our country. This position is strikingly characterized by the vast profusion of vegetable organic remains, found among the thin seams of clay-slate which are seen to be interlaminated at the base of the mammoth bed. These fossil remains are all embraced in the *Lepidodendron* tribe of vegetation. The species most conspicuously to be seen were the *Lepidodendron obovatum*, together with some few impressions of *L. clypeatæ*. These at least were all that we could recognize during our brief visit to the place, but they were amply sufficient, satisfactorily to determine the true position of this coal field, in the great geological scale of rocks.

But our wonderment was in no small degree excited on beholding the vast magnitude of this development of pure coal, twelve feet and some inches in thickness, in one entire mass, without a single separation of either sandstone or shale anywhere visible, and in a perfectly horizontal position, without a single fault or dislocation to be seen throughout its entire extent, at least as far as could anywhere be discovered in the several openings which have revealed it to the human eye.

The roof which covers this magnificent display of coal is a firm compact sandstone of a light drab or grayish tint, and is particularly visible from its strong contrast, both in form and color, to the murky blackness of the coal beneath. Directly underneath this twelve feet stratum of coal, occurs a thin layer of shale, abounding in the above mentioned vegetable remains. Contiguous to this and immediately beneath, appears another stratum of workable coal, from three to five feet in thickness, differing in no degree from that above, this is succeeded by several alternations of the coal and shales. This complete formation of sandstone, coal and shale, rests in a conformable manner upon the heavy mass of coarse conglomerate which constitute the well known mill-stone grit of authors, and,

which everywhere form the foundation, or basis rock of the coal measures. This gritty mass was not discernible immediately at the adit-level openings, but at a distance from thence it was distinctly visible, capping the summit of the hills, and dipping under the coal beds at a corresponding level with their base.

From a close inspection at the time, I had strong inducements to consider this twelve feet mass of coal as not properly constituting the entire thickness of the bed, but that it should be continued, and embrace all the different seams of coal beneath; the interlaminated layers of shale being too thin and insignificant to be recognized separately from the entire mass. This being the just consideration, and the facts being perfectly consistent, this single mass of coal would expand to the wonderful magnitude of nearly twenty feet in thickness; much greater than any single stratum of the mineral known to exist in our country.

This mass of pure anthracite is simply arranged in numerous parallel layers, in perfect conformity to the horizontal stratification of the rocks into which it is embraced; each of these layers are about from three to four inches in thickness, and separated from each other by divisional seams, most generally consisting of a fine pulverulent carbonaceous substance, much resembling native charcoal in appearance. These stratified layers are again subdivided into innumerable lamina, perfectly corresponding with the uniform horizontality of the entire mass.

The appearance of this coal when properly ignited, either in stove or grate, presents a most pleasing aspect, being free from flame of any kind, the entire mass of incandescence, assumes a soft, mellow whitish light, every atom of the coal becoming luminous throughout its entire structure, and exhibits all over its surface a pure, white and fine ash, having a near resemblance to being spread over with a mantle of silvery gauze. The heat emitted is intense, and the soft, white ash in insignificant quantities, nor could clinkers of any kind be discovered in its midst.

One of the most striking peculiarities of this extensive deposit of carbonaceous material is its close resemblance to the semi-bituminous and bituminous coal fields of our more western

states; but according to the strict analysis of Prof. Brush, of Yale College, it contains not a particle of that material, but burns freely without the slightest appearance of a flame of that nature, and its freedom from sulphurous fumes denotes that no adulteration of sulphuret of iron has ever been found in the mass. The ash of Anthracite is chiefly composed of silicate of alumina; and any coal of this nature containing more than twelve per cent of ash is perfectly useless for metallurgical operations. This Anthracite is found to contain less than one-half that quantity, consequently it is most admirably adapted to the purpose.

The natural advantages that this coal field possesses over that of most other mining districts, is the wonderful economy with which it can be worked in the most successful manner. In every direction, the sloping sides of the land present a most convenient entrance to a level drift all around its confines; and the facility with which the coal can be brought by the tram-way passage to the railroad cars at the entrance, and likewise the freedom of all rubbish in the mine and the perfect drainage of all moisture [moisture] that may at any time accumulate, are advantages that most mining districts would most ardently desire, and but very few are found to possess.

It may be as well here to state that this interesting deposit of Coal approximates more closely to the dividing line of the State of New York than that of any other coal fields of our neighboring state.

In conclusion, permit me to congratulate your company, as being in possession of one of the most valuable tracts of land in the country, as well as one of the most *perfect coal fields* that it has been my good fortune ever to have witnessed.

Respectfully yours, &c.,

JAMES EIGHTS, / Geologist and Mining Engineer.

Albany, Feb 12, 1869

Note — We, the undersigned, fully concur in the facts above stated, and will cheerfully give any further information desired.

SAMUEL MOFFATT,
JAMES MILWAIN,
WILLIAM RUSSELL.

NB: a folding plate, prepared by the lithographic firm of G.W. Lewis, 432 Broadway, Albany, accompanies the 1869 report. Who drew it is not stated. It seems likely it was drawn to Eights's specifications, not by him. For the 1870 report of the company, it was apparently carefully copied by the firm of "E. Hoyt & Cos. Printers & Lithographers, 120 Williams St. New York."

NOTES

1. Lossing's story of "Albany fifty years ago," p. 453. What part is Eights and what part is Lossing may be queried. Assuming that Eights refers to a festival held after his family moved to Albany in 1810, I find it hard to believe that JE was so slight a youth that King Charley could jump a five foot barrier with him — at, if Pleat and Underwood are correct, an age of about a hundred years! When Munsell reprinted Lossing's account, he left the Pinkster account unchanged. Some reference to the Eights family as slave holders (see account of Jonathan in chapter 1) may be pertinent.

2. CG, 28: 306-307, 322-323, 338-339, 8, 15, 22 November 1866.

3. J. Munsell, reprinting of JE's Pinksterfest account, p. 323; Munsell missed the first installment of Eights's account, thus misleading a century of later scholars, to whom he was better known than Eights.

4. Munsell, in his reprinting of "Pinkster Festivities in Albany Sixty Years Ago," p. 323. Munsell rather muddled his introductory statements. Perhaps Eights witnessed the Pinkster Festival before he became a permanent resident of Albany in 1810; if not, his description must stem from the period immediately before it was banned in 1811. By then, of course, he would have been well beyond the age of the unisexual dress of small children that is described. On 28 April 1811, "A law was passed by the Common Council prohibiting any person from erecting any tent...within the limits of this city, for the purpose of vending any spiritous liquors...on the days commonly called pinkster; nor to collect in numbers for the purpose of gambling or dancing...or to march in parade, with or without any kind of music" (Munsell, *Annals of Albany*, 3: 29). Presumably Munsell meant that Pinkster Hill was where the Capitol was later built, before "the hand of man was stretched forth" to eliminate the open space. He does not indicate when "King Charles" died.

5. I am indebted to AI for a copy of its treasured copy of Absalom Aimwell's classic. The author's name was surely a pseudonym but there is no indication of this for our particular Aimwell in the authoritative *National Union Catalog of Pre-1956 Imprints*, 5: 661, which has no entry for *A Pinkster Ode*. Their only Absalom Aimwell is a pseudonymous writer well enough but he was Andrew Adgate, d. 1793, a Philadelphia writer on music theory, education and psalmody. There is likewise a Walter Aimwell, Pseud., who was William Simonds, 1822-1859. For G.R. Pleat and A.N. Underwood, see "Pinkster Ode, Albany, 1803." I have used nearly all their commentary on it.

6. Constance Vallis Hill, "Pinksterfest displays Dutch, African roots." According to Hill, "James Fenimore Cooper called Pinkster day in New York City the great Saturnalia of New York blacks." The argument that the Pinkster Festival was an African institution only has been put forth (as by Pleat and Underwood, cited above). G.R. Howell and Jonathan Tenney, *Bi-centennial History of the County of Albany*, p. 725, also rather make such a claim, although apparently upon the authority of an Albany black, John J. Williams, said to have been born in 1809. He thought that it "was in Africa a religious day, partly pagan and partly Christian, like our Christmas day." The Howell and Tenney description of Pinkster Day was mainly from James Eights, although they did not say so. They give an account of Adam Blake, the "Beau Brummel of the day."

7. For early notices of Albany celebration of the end of slavery in New York, see Albany *Argus*, Anon., 3 and 7

July 1828; 7 July 1830; 6 July 1831.

8. See my text for full title and text of the 1869 report, a pamphlet of seven pages (including title page cover) and a plate showing a geological section. I have this in photocopy, courtesy of the James Hall Papers, Library of the American Museum of Natural History. The version of 1870 was pp. 26-31, with frontispiece (map) and colored plate, in *Statement Concerning the Sullivan and Erie Coal and Railroad Co.* I have a copy of this through the generosity of Professor Warder Cadbury. The report of JE in it is identical to the 1869 Albany imprint, which consists of his material alone. The folding frontispiece map of the company report (1870) is unrelated to Eights.

9. I do not know what is meant by white and red hemlocks. Latin names are not given. By today's nomenclature, only one species would have been present.

JAMES EIGHTS: THE DECLINE, 1870–1900

While not the last chapter in this long history of Albany's James Eights, this one concerns his final dozen years of life. Since, however tenuously, he shared in the glories and the failures of the Albany Institute, it is well to carry the story of that institution to the end of the century. By that time, few people remembered James Eights and the Institute had ceased to exist as the center of natural history information storage and sharing that Eights had helped to establish.

First, James Eights. He maintained an address in Albany through 1873. In the Albany Directory in 1870, he was "Mining engineer, 56 State [Street]"; in 1871, he was "Mining engineer, 56 State, boards 44 do." His entry then did not change during 1872 and 1873. He was not listed in the Directory 1874 through 1882. John Mason Clarke had it that Eights had gone to the home of his sister Alida Palmer in Ballston Spa, where he died. Eights did die in Ballston Spa but Char Miller and Naomi Goldsmith point out that both Alida and her husband Daniel Palmer predeceased Eights. That leaves Eights's residence in Ballston Spa in his final period of decline somewhat mysterious.

It appears that in his final Albany years, Eights paid dues to the Institute, possibly for the first time since his initiation in the 1820s. For example, on 1 February 1871, he was a resident member, "James Eights, M.D., State, corner North Pearl," being one of 196 members. On 1 January 1872, he was again listed (as above), one of 231 members. On 1 April 1873, he was listed (as above), one of 207 members. This was his last

notice in publications of the Albany Institute.¹

The known ties of Eights to Albany for the entire period 1870–1882 are few. Some time in 1870, the grand resident artist of Albany, Asa W. Twitchell, painted an impressive portrait of him, surely proof that someone recognized his worth.²

The Albany Institute thrived. On 1 February 1870, members were told of the discovery and preservation of various fossils of ancient woody plants at Gilboa, Schoharie County. They were alerted in April 1870 to the annual meeting of The American Association for the Advancement of Science in Troy in August. In May, Institute members were told they would be joined by members of the "Dana Society of Natural History...organized about a year since at the Albany Female Academy," for a field trip to the Schoharie fossil area. There were four Institute field trips in 1870!³

In Albany on 13 September 1871, Eights acknowledged receipt of \$100 "for services rendered in examining lands in Town 26 Essex County New York." One presumes the "examination" concerned mineral deposits, although it may have been a surveyor's study of a tract. Work of this sort was probably Eights's bread and butter, even though by then he would have been 72 or 73 years of age.⁴

In May 1872, Institute member Robert P. Whitfield attended a meeting, primed to defend James Eights against prestigious honorary member Louis Agassiz. This has been covered in the chapter on the history of Eights's paper of 1833 on *Brongniartia*. Agassiz had pompously

announced fulfillment of his previous prediction that trilobite-like crustaceans would be found in deep-sea dredging on his much publicized Hassler Expedition. Whitfield pointed out that Agassiz's "new" crustacean was probably similar to or identical with the new species announced by Eights in 1833 as *Brougniartia trilobitoides*. By the time of the Institute meeting, Whitfield's position had been reinforced by a critical article by S.I. Smith in the *American Journal of Science*. Verplanck Colvin, who "remarked that Dr. Eights is still residing among us, though his health does not permit him to attend the Institute meetings, his age being now about seventy-four years," said that Eights agreed that the discovery announced by Agassiz was nothing more than what he had previously reported.⁵

At a meeting of the Institute on 19 November 1872, with "one corresponding member (Dr. F.B. Hough), and thirty resident members" in attendance, "Professor James Eights, who was a member of the Institute as early as 1823, contributed a short paper on the 'Importance of frictional action, as related to light, motion and heat,' which was read by the Recording Secretary. It was suggested, in accordance with the views of eminent scientists, that so called 'solar heat' is not produced directly by the sun's rays, but indirectly, through a series of effects wrought upon the attenuated forms of matter which exist in all space, and which effects are intensified in proportion as such matter becomes more dense in the vicinity of the earth and other planets. If this be so, even Uranus and Neptune may have a temperature similar to that of the earth itself."⁶

Among Institute-related events of note in this era: Library space was desperately needed (6 December 1870). On 3 January 1871, James Hall displayed "Crystals from the remarkable collection made by the late Dr. Ebenezer Emmons," that collection having been bought from Emmons's widow by Erastus Corning for the State Cabinet. Paul B. Du Chaillu "of New York City" (a charismatic French explorer) was among visitors 6 Feb 1871. At the first field trip on 27 May 1871, 43 members and over 150 visitors attended. The death of Erastus Corning, member since 1828, occurred 8 April 1871. There was a

very popular field trip to Howe's Cavern in Jul 1872.⁷

On 15 April 1873, the Institute had over 200 resident members; field trips during these years continued to be enthusiastically attended. Despite the depression, income increased from \$235 in 1863 to \$1000 in 1873. The death of Professor Agassiz was noticed 16 December 1873. The Institute, for all its activities, found its future insecure. Having asked, in an informal way, that the Albany Academy consider granting a piece of land for the Institute on which to erect permanent quarters, the plea was renewed formally on 15 April 1873 by President John V.L. Pruyn. He thought it well within the power of the trustees of the Academy to grant land to the Institute, considering the prestige of the Institute in Albany. Academy trustees, however, saw it differently and vetoed the idea.⁸

There was an interesting, if wrong-headed, short essay on "Darwin's Speculations" signed "J.E." in the *Country Gentleman* in 1874. It was wildly Platonic on the one hand, faintly Lamarckian on another: and totally ignorant of Darwin in all ways. "All particles of matter, when free to act, have a tendency to aggregate into spherical masses....In animal and vegetable life, generic types form the centres from whence species pass off in ever varying radiations; and whenever the most distant extremities of these divergent specific rays meet with those from any other neighboring genera, varieties result merely from the intermingling influences of each. But these varieties can never derive an increasive strength of action for independent progress (as Darwin supposes) beyond the species which gave them being. Darwin supposes that...the variety thus produced must go on increasing in strength until it finally destroys its parental types, and assumes the magnitude of an independent genus — with no mention of the resources from whence it could possibly obtain this perpetual-motion kind of power. The fact is, all varieties, when left to their own natural selection, free from the deforming hand of man, will without fail, in one or two generations, revert to the parental stock whence they originated — the species furnishing the most influential power naturally reclaiming its lost offspring." There is

nothing here to prove or disprove Eights its author. One would, overall, prefer that he had not written it.⁹

A certain memory of James Eights cropped up in a notice of "Libraries and Herbaria," in the *Torrey Botanical Club Bulletin* in 1876; it was observed that the New York State Herbarium had a collection of about 1,600 species of phanerogams and about 2,500 cryptogams — plus the herbarium of Lewis C. Beck, with its more than 3,000 species of phanerogams and 600 cryptogams. The Beck specimens had "among them...the types of several species. Not the least interesting specimens are those collected by Dr. James Eights in the southern part of South America and on the islands of the South Pacific Ocean."¹⁰

The death of Joseph Henry (13 May 1878) was noticed at length. Although there was constant worry about space, 48 volumes were added to the library in the year 1878 (there had been no notice of any additions to the natural history collection for many years). Members were edgy about free-loaders. A resolution was presented that no paper by a nonmember might be read unless favored by two-thirds of the membership. As at other times, thoughts turned to raising money or joining with others to erect a building. Money was a sore spot: One treasurer resigned when members refused to allow payment of printing costs; dues were to be raised, to generate a building fund; uncollected dues would be turned over to a collector, five percent commission to go to him. Joel Munsell died 15 January 1880.¹¹

It can now be said that James Eights, in the last decade of his life, moved around as mysteriously as he had done in much of the rest of his existence. While J.M. Clarke in 1916 had him simply reappearing, in 1882, for his demise at "the home of a sister living in Ballston," Char Miller and Naomi Goldsmith report correctly that Eights outlived both his sister and her husband. They were correct to suspect that Eights departed Albany about 1874.

In fact, it was not to the Ballston Spa home of the then widowed Daniel Palmer that he went (James's sister Alida Palmer died in 1862), but to the Greenfield, Saratoga County, home of his

unmarried sister, Catharine. There, he appeared as a member of her household in 1875: his age reported as 76 years, his occupation engraver, his place of birth Pennsylvania.¹²

Catharine Eights (1816–2 January 1878) was looking out for her brother's future by at least 15 October 1873, when she wrote her will. She left to him the income from railroad stock, to be shared by Celia H. Palmer (no doubt the daughter of Alida and Daniel Palmer, who was 16 years old and living with her aunt Catharine in the Greenfield census of 1865). Before her death, Catharine realized that James was in no condition to fend for himself, even with income from her trust. In a codicil to her will, dated 1 November 1877, she left to Celia H. Lawrence ("formerly Celia H. Palmer") the "full and free use of the house and lot upon which I now reside, so long as my brother James Eights shall live, provided that she shall kindly and properly care for the same James Eights."

Then, on 1 December 1881, Catharine's executors and Celia H. Lawrence sold the Greenfield house and lot. By then, Celia had inherited her late father's property in Ballston Spa, Daniel Palmer having died 25 August 1880. It was undoubtedly then that James Eights became a resident of that village, where he died 22 June 1882.

The *Ballston Journal* (the only newspaper known to have carried an obituary) had on 1 July the laconic notice: "DIED / In Ballston Spa, June 22, 1882, Dr. James Eights, aged 85 years." According to his entry at Albany Rural Cemetery, where he was buried two days later, he died of Bright's Disease, a degeneration of the kidneys. No certificate of death for him is known.¹³

There is no record that James Eights left a will or an estate that required settlement, nor that he ever owned property in Saratoga County.

Sadly, Eights's death went unnoticed by the Albany Institute. It is true there was no meeting between 20 June and 10 October in 1882. One might thus insist that Eights simply fell through the cracks. However, on 21 November 1882, there was a notice of "the recent death of Allen B. Durant, Esq., a resident member of the Institute." On 27 February 1883, there were

regrets at the deaths, at previous times, of a resident and a corresponding member. On 5 June 1883, the death of Mr. John Paterson, "whose connections with the Institute has [!] covered a period of fifty years," was recorded. On 2 October 1883, the death of Dr. Jacob S. Mosher, who died during the summer, was memorialized. Thus, there were multiple ways in which James Eights's death could have been recorded.¹⁴

For the rest, this chapter is a history of the decline of the Albany Institute. James Eights's guardian angel slumbered for a quarter-century. Indeed, the 1879 edition of "Manual of the Albany Institute," with its list of members to date, listed him with the founding membership of 1823, as "James Eights, M.D." — the asterisk indicated former members who were already dead!

In 1884, the Institute agreed to sell "U.S. Congressional and Patent Office publications," to make room in the library. Institute meetings continued but membership never more than maintained an even keel. By 1888, a decline was evident. Attendance of members at meetings fell to new lows. Despite the occasional appearance of a speaker who had something vital to say, the Institute was clearly in trouble. In 1888, there was a brief reference to a need to search for new rooms for the Institute (which had long been accommodated at the Albany Academy). In February 1890, the librarian reported that books were now doubled on shelves; periodicals were stored unbound in a closet. Blackboards had been erected by Academy teachers in front of some cases, so books could not be reached. Some new works were now stored in empty cases in the State Library. No books were purchased the past year, additions being only those that arrived as exchanges and as gifts.¹⁵

By June 1890, the worm had turned: The Dana Natural History Society invited the Albany Institute to partake of *its* field trip. And, essentially the death knell: "Mr. E.J. Miller on the part of the trustees of the Albany Academy announced to the Institute that the trustees request that the contents of the Museum of the Institute now placed in the schoolroom be removed, as the room is now needed by the pupils of the school.

"On motion of Mr. Miller, to appoint a committee of three to confer with the trustees [of the Academy] with power...to examine the collection of the Institute Museum and select what is worth preservation and store them until further action is taken.

"Messrs. [Verplanck] Colvin, Profs. [James] Hall, and [John C.] Smock were appointed on this committee."¹⁶

At one point, cheerful hopes were expressed about sharing expenses with the Albany Young Men's Association in the building of an extension to Harmanus Bleecker Hall. Nothing came of it, probably because vital leadership and member interest were lacking. The report of the above committee was accepted, although we are not told in the Minutes what was in the report. On 2 June 1891, "it was voted that the Curators cause the collection of the Institute now in Albany Academy building to be removed from the rooms in which it now is and to pack such portions of it as they deem valuable and store the same at an expense not exceeding one hundred dollars." On 20 October 1891, this was reported as done — but there was a bill of \$212 that must be paid to the Academy to restore the walls of its rooms to the condition they were in before Institute shelves were installed. "Mr. Viele expressed regret that the attendance at the meetings of the Institute was so small." Amid much talk of costly monuments to wars and other national disasters, no money could be found for the Institute. And at four meetings in December 1891 through 2 February 1892, a quorum could not be mustered. Books in the library of the Institute were by then being regularly stored at the State Library. Oddly, it was not until 2 January 1894, that the Minutes recorded what had long since been accomplished: "On the call for the report of the curators, the chairman being absent, the secretary [George R. Howell] remarked that by the vote of the Institute in 1891 the collection was presented to the State, the only portions of any value in it at that time being a few minerals, the curiosities or Ethnological portions of it remaining were stored in the State Museum." All this seems to have taken place at the will of the curators, for I find no evidence in the

Minutes that a full explanation was offered or that a formal vote on the matter was taken.¹⁷

Since the Institute nearly maintained its membership throughout this period, it is evident that its low state was due as much to lethargy as total lack of funds or potential. The Institute itself retained no record of when its natural history collection was transferred to the State Museum or what materials were transferred. Official published records are also sparse as far as the State Museum is concerned. In its Report for the year 1891, we learn: "The Albany Institute has donated to the State Museum its extensive collection of minerals, fossils, shells and alcoholic specimens. During the next year this material, most of which is now stored in boxes, will be unpacked and catalogued so far as possible."¹⁸

For the zoological material, what information reached the public in 1892 was skimpy in the extreme. However, one aspect of the Institute collections received more timely and much more detailed attention, thanks to prompt work by John Mason Clarke, acting on behalf of the State Geologist, James Hall. On 1 December 1891, Clarke provided a "Catalogue of the collection of geological and palaeontological specimens, donated by the Albany Institute to the State Museum." In it, we have as full an accounting of one part of the Institute collections as a responsible and thoughtful worker could provide. It illuminates, again, the slipshod nature of the transfer of material. Clarke reported: "The collection of the Albany Institute was received at the State Museum in the month of August, and formally donated to the institution on the 6th of October, 1891. [Footnote: The extensive collection of minerals donated to the State Museum at the same time, together with other collections of natural history, have not come under the cognizance or control of the State Geologist, and no account of them can be given in this connection.] When the fossils came into my hands I found them in bad condition. Such labels as existed had been gathered into piles and boxes by themselves, with the exception of the few instances in which they had been glued to the specimens. The majority of the specimens, however, bore a numerical ticket, which had been copied upon the separated labels, and by means of this arrangement the

matching of the few labels with their specimens was not difficult. Fortunately, these labeled specimens constitute the most important part of the collection; they are mostly Trilobites, and embrace a number of the original types used by Dr. Jacob Green in his 'Monograph of Trilobites of North America,' with much other interesting material of the same class, and in addition are several type-specimens of Cephalopods from the Black River limestone, described by yourself [that is, James Hall] in volume I of the *Palaeontology of New York*.

"Of this series of labeled specimens a few are evidently missing, but perhaps not as many as, under the circumstances, one might expect. It appears from the labels on the rest of the collection that the specimens were divided into groups, each with its own form of numerical ticket. It is understood that there was a manuscript register or catalogue of these specimens, but it was not found among the documents pertaining to the collection nor delivered with it, and subsequent careful search among the archives of the Institute has failed to discover it. The want of this catalogue has naturally added greatly to the task of identifying the specimens. On account of the historical value of this collection I have taken much pains to locate such material as proves to be a genuine contribution to the State Museum....For us the value of this collection lies almost wholly in its New York palaeozoic fossils; the few mesozoic and tertiary specimens being from scattered and uncertain American and European localities." There follows as complete a list as Clarke could provide, some notes being full, some specimens being represented only by the notice, "Missing," or present as "Label only." The trilobites "had been carefully labeled by the late Dr. T.R. Beck, and though these labels were all displaced, the numbering on both labels and specimens has facilitated their replacement." This included some nine specimens in "The James Eights collection." In addition, five specimens in other categories had been collected by Eights.¹⁹

For the rest, information is both scanty and in bits. The State Museum reported for the year 1892 as much as was ever published on the Albany Institute zoological specimens and their

transfer to the State Museum. No effort was made to credit original collectors, so Eights specimens can only here and there be inferred. From the Institute, the Museum got specimens of two mammals (tusk of walrus, teeth of sperm whale). Of Reptiles and Batrachia (amphibians), there were nine specimens, the tiger salamander being certainly an Eights specimen. There was a pipefish from New Jersey. Three species of crustaceans were noticed, none of any concern to us — a notable matter, for it means that either Eights did not leave specimens of his Antarctic species to the Institute collection or, if so, they did not survive or were not valued enough by the State Museum to be accessioned. There was a parasitic worm and, as might perhaps be expected, a considerable number of shells, since they would have survived ill treatment better than most museum specimens, especially those preserved in alcohol. The mollusks from the Institute amounted to some 121 species, a great many of which, considering their points of origin, were probably collected by James Eights. The total number of mollusk specimens amounted to many hundreds, including large multiples of many of those from the Chilean islands of Guafo and Santa Maria, likely Eights collecting points. It is worth noting that no shells credited to the South Shetland Islands are listed (see account of the Antarctic mollusks in a previous chapter, especially the genus *Nucula*, as then understood). The absence of collectors' names is particularly unfortunate in the case of specimens from Panamá, for one would like to know if any of them were collected by Eights during his shadowy visit there.²⁰

With this, both a chapter and an era end. James Eights had long been in his grave; significant acknowledgments of his existence ceased even earlier. A new chapter will pick up a theme adumbrated in an account rooted in Eights's great achievements of the decade of the 1830s — when, in his account of his long-ignored ten-legged sea-spider, *Decolopoda*, he providentially laid the foundation for his own eventual salvation. It is hardly an exaggeration to call the history of James Eights in the 20th century a reincarnation, perhaps even in ways that John Mason Clarke did not envision when he first used that term.

NOTES

1. See *AI, Proceedings*, vol. 1, membership list for 1 February 1871, 1 January 1872, 1 April 1873 (these are separately paged inserts) for listing of Eights. It seems pretty likely that Eights was paying dues (or that someone was paying for him); perhaps he even attended meetings. The Institute was increasingly strict in regard to dues. For example, 19 January 1869, a rule was passed: "*Resolved*, That the secretary be authorized to prepare a list of all members of the Institute, separating those whose dues are in arrears for two years, and that these latter be no longer considered as active members" (1: 91). And later: by-laws were amended to read that an affirmative vote of eight-ninths of the members voting (and at least nine affirmative votes) be required for election... "but membership shall not be complete until the annual fee for the year shall be paid" (*Proc.*, 1: 209). See also J.M. Clarke, "The reincarnation," p. 202.

2. See later chapter. One wonders what led Twitchell to consider Eights worthy of a portrait. Can it be that his sister Catharine had a hand in it?

3. *AI, Minutes*, 5 April, 28 May and elsewhere, 1870; 38 members attended a meeting in November. The popularity of James Dwight Dana in Albany is hard to understand. There is even a plaque honoring him on Madison Avenue in downtown Albany. Yes, it was an age of hero-worship: There were numerous societies and publication honoring Louis Agassiz, although few were established during his lifetime, as was the case in this Dana commemoration. Eights never enjoyed any such renown, even in his own bailiwick. There is a need for a full history of the Dana Natural History Society. It is usually accounted a literary or a women's natural history society, founded 19 Nov 1868 and sponsored by the Albany Academy for Girls. See: Dana Natural History Society, *Souvenir of the Twenty-fifth Anniversary of the Dana Natural History Society Reunion* (1894). For the Gilboa fossils, see *AI, Proc.*, 1: 129-131, 132-134, 18 January; one entire tree, found intact, was to be preserved for the State Cabinet.

4. *AI, McKinney Library*, 1944.68.14. The handwriting of the person who wrote the receipt (different from that of Eights, who signed it) is hard to read. The man for whom the work was done appears to have been Robert T. Sherman or Shurman.

5. *AI, Proc.*, 1: 322-323, meeting of 7 May 1872; *AI, Minutes*, 7 May 1872, pp. 619-622. Whitfield (1828-1910) was James Hall's sometimes uneasy associate from 1856 to 1875, an interesting story told by R.L. Batten, "Robert Parr Whitfield: Hall's assistant who stayed too long."

6. *AI, Proc.*, 2: 4; *AI, Minutes*, 19 November 1872, page 13. There is nothing to indicate that Eights was present at the meeting.

7. *AI, Minutes*, on dates noted; there is a long account of the Emmons collection; a meeting memorializing Corning occurred the evening of his death. For the Emmons collection, see *AI, Proc.*, 1: 211-213. The Howe's Cavern field trip was reported in a singularly full account, pp. 349-357; see also vol. 2: 9, 17 December 1873, for added information and a map of the Cavern.

8. *AI, Minutes*, 15 Apr, October, 16 December 1873; 3 February 1874. For Agassiz, see *Proc.*, by James Hall and others, 2: 91-93. *AI Proc.*, 2: 22-24, 25, 28-29.

9. *CG*, 37: 302, 7 May 1874.

10. Anon., "Libraries and herbaria. II. (The New York State Herbarium)," 1876.

11. AI, Minutes, 14 May 1878; 10 January, 10 June 16 December 1879; 20 January, 23 November 1880. The notice regarding Munsell (16, 20 Jan 1880) was long, including a full list of his publications — see ledger pp. 283-285, 287-290.

12. For this information, I am greatly indebted to Lynn E. Calvin and Karen U. Campola, Saratoga County History Department, Ballston Spa (letter 8 Jan 1997). The date of Celia H. Palmer's marriage to Henry W. Lawrence and the date of his death are not known. Celia later married the Rev. Joseph Zweifl (19 September 1850–25 October 1902). With no indication recorded of his relationship to the Eights clan, Zweifl was buried in the Jonathan Eights lot at Albany Rural Cemetery; Celia, however, was not. Perhaps she was buried beside her first husband (not, in any case, in ARC). One other puzzling feature of the Eights burial lot is a stone for Ann Bennett (who died, according to records at ARC, 23 Apr 1901); she was a member of Catharine Eights's household in 1865 and she was given a bequest in Catharine's will; she may have been a cousin of Celia and thus a niece of Catharine and James, although my Eights family genealogy has not proved fine-grained enough to identify anyone with the surname of Bennett.

13. *Ballston Journal*, 1 Jul 1882. There is some mistake about his age at death. Even if we assume him to have been born in 1798 (as Albany Rural Cemetery and its followers claim), he would have been only in his 85th year. Balance this against the date of his baptism (1 May 1799) and the date of christening of his older brother Abraham. In addition, in the 1875 census for Greenfield, he must himself have furnished the information that he was 76 years old, indicating a probable birth year of 1799. Whether he really died of Bright's Disease is anybody's guess. I have been unable to find the original doctor's burial permit, in which alone this information originated. To date, no one has cited the existence of a death certificate — the uniform reporting of births and deaths in New York State being then in its infancy. The Vital Records Section of the N.Y. Department of Health (letter 6 Jun 1997) has no such record. James Eights was buried on 24 June in Albany Rural Cemetery, in the Jonathan Eights plot, Lot No. 53, Sec. 56. There are ten burials in this plot: Jonathan and his wife Alida Wynkoop; their children James, Catharine, Sarah E., Alida Eights Palmer and Daniel, her husband, an anomalous "Abram W. Eights" said to have died 1 January 1822 (which is incorrect; see discussion in the chapter on Jonathan Eights) and two burials discussed above: Ann Bennett and the Rev. Joseph Zweifl. (For help with certain details of Eights genealogy, I am grateful to Mrs Mildred Carswell Sharpe [graduate of Albany College for Teachers 1919], who was 90 years old in 1988 when I had letters from her; she married in 1926 Robert Boies Sharpe [1897–1982], a great-grandson of Ann Eights Boies.) I do

not know when monument engravings listing James Eights were done; they must have been done by Celia Palmer, perhaps upon wishes expressed by the late Catharine Eights. Jonathan Eights was the first direct burial in his plot (1848). Albany Rural Cemetery was established in 1844, so earlier deaths were reburials. For an interesting early reference to ARC, see "The Albany Cemetery," *Albany Argus*, Anon., 3 Jul 1845; a good recent "Sunday Supplement" account is Craig Brandon and John Carl D'Annibale, "Albany Rural" (*Sunday Times Union*, 29 Sep 1991, p. 3). The plot containing graves of Jonathan's father, Abraham (died 1820), established by Abraham's son-in-law James N. Cobb, "for heirs of Abram Eights," was Lot 13, Sec. 52, bought by Cobb 19 May 1848. In it are buried Abraham Eights (died 1820) and his wife Catharine (died 1829), their children Abraham, Jr. (died 1798), Jane C. (died 1828), Mary (died 1848), Rebecca (died 1853), Rachel Eights Williams (died 1857) and her husband Isreal Williams (died 1840), Elizabeth (died 1857), and grandson Abram Eights Williams (died 1896) and his wife Mary Gould (died 1893). Cobb himself bought a contiguous plot, Lot 12, Sec. 52, on 4 October 1848; in it are buried son James Eights Cobb (died 1820, aged five years), his wife Phebe Eights (daughter of Abraham, died 1869) and himself (died 1872). (From interment documents, ARC, to whose registrar, John W. Buszta, I am indebted for many favors.)

14. AI, Minutes, 21 November 1882; 27 February, 24 April, 5 June, 2 Oct 1883.

15. AI, Minutes, 1884 to 1890.

16. AI, Minutes, 17 June 1890.

17. AI, Minutes, 4 November 1890 (pp. 503-504 of volume for "1872-1893") through 2 January 1894 (p. 550, etc.).

18. In "Additions to the Museum Collections," New York State Museum, Forty-Fifth Annual Report of the Regents for the Year 1891, p. 20. Transmitted 3 Feb 1892.

19. John Mason Clarke, in New York State Museum / Forty-fifth Annual Report of the Regents for the Year 1891, pp. 349-350, 352, 353, 354, 355, 356. While Eights received some recognition here, the fragmentary nature of the report — absence of records of minerals, probable lack of interest in fossils from other parts of the world — likely deprived him of much credit that was his due. We shall never know if a specimen of fossil tree trunk from the South Shetland Islands was among material held by the Institute and transferred to the State Museum. It is incredible that neither Institute nor Museum indicate the presence and the transfer of catalogues of specimens. Catalogues of specimens originally held by the Institute would be valuable!

20. New York State Museum / Forty-sixth Annual Report...for the Year 1892, "Additions to the Zoological Collections," pp. 21, 22, 24-27. See also Anon., 1893, "Catalogue of the Families Tritonidae...in the Collections of the New York State Museum..." (Report of the Museum for 1892), pp. 39, 43, for two possible Eights specimens.

THE ROAD BACK: 1900 TO 1920

By the last decade of the twentieth century, James Eights had become a legend in the history of Antarctic science. His shadow is perhaps larger than life, so anxious is everyone not to repeat our ignoring of his work most of his lifetime and for many decades after his death. Yet, in science, as in the history of Antarctic exploration and American art, by the year 1900, Eights was as nearly an unknown quantity as it is possible for a modern figure to be. While we have the word of John Mason Clarke that James Hall had mentioned Eights as a brilliant man, nobody bothered to document a knowledge of his achievements or record his history. Clarke himself, for all his nearness to the center of Eights's universe, knew next to nothing of him when Leon J. Cole began to stir the ashes of his history in 1905. Even Clarke's account of 1916, long as near an authoritative story as was to be had, had its flaws.¹

I have touched upon Cole's contribution to the revival of Eights in my account of *Decolopoda australis*. Some repetition is justified here. The amount of inertia that Cole had to overcome must first be described.

In W.A. Taylor's valuable history of Antarctic discovery (1898), there was no mention of Pendleton, Palmer, Reynolds, and Eights, even though notice was made of "some discoveries of importance...made by sealers and merchant captains." Naturally, the spotlight shone most brightly on the recognized stars: Cook, Bellingshausen, Weddell, Biscoe, Balleny, Dumont d'Urville, and Wilkes.²

Eights more narrowly missed being noticed in some parts of *The Antarctic Manual*, edited by George Murray, in 1901. For example, Charles Darwin's "Note on a Rock Seen on an Iceberg in 61° S. Lat.," was quoted in full, with its reference to Cordier's account of 1837, in which Eights's observations were alluded to. But, as before, Eights himself was unnoticed.³

For Murray's book, Hugh Robert Mill compiled "A bibliography of Antarctic exploration and research" that got a little closer to Eights. He was not in the index, although the reprinting of his 1852 paper on *Glyptonotus* by the *American Journal of Science* was listed. In addition, it was noted that in "1830?...Edmund Fanning, with the American brigs 'Seraph' and 'Annawan,' visited the west coast of Graham Land." The expedition only visited the coast of Graham Land, if that includes the South Shetlands; and, of course, Fanning did not accompany it. Edmund Fanning's reference (1834) to the Pendleton/Palmer exploration was noted.⁴

In *The Siege of the South Pole* (1905), Hugh R. Mills got a little closer to Eights: "The Antarctic summer of 1829-30 saw Captain Pendleton in the brig Seraph, and Captain Palmer in the brig Annawan once more in the South Shetlands and cruising to the north and west of Palmer Land. On this occasion, they were accompanied by two scientific men, Mr. J.N. Reynolds and Mr. Watson." In his "Introduction" to Ernest Henry Shackleton's *The Heart of the Antarctic* (1909), Mills actually retreated a bit, merely noting that "An American man of science, Mr. J.N.

Reynolds, had gone to Palmer Land in the early days, and on his return agitated strongly for a national exploring expedition."⁵

Thus, historians of Antarctic exploration were even tardier than zoologists in acknowledging Eights's contributions. Edwin Swift Balch dug into the sealing archives at Stonington and carefully documented his work but was no improvement over Mills, the British historian. In 1902, he got no closer to Eights than a fairly sensible statement that: "in 1829-30, Captain B. Pendleton and Captain Palmer, in the brigs 'Seraph' and 'Annawan,' made a cruise north and west of Palmer Land. Some scientists went on this expedition, among whom were Messrs. John [!] N. Reynolds and Watson."⁶

In 1904, Balch added some refinements, having examined additional documents related to the history of Antarctic sealing at Stonington. He furnished a fuller biography of Nathaniel Palmer and clarified some references to his brother Alexander. There was still nothing on Eights.⁷

By 1909, Balch was able to report upon "Stonington Antarctic Explorers" in greater depth. However, he found as many questions as answers, even though he was, for the first time, able to bring together several documents on the "Voyage of 1829-1831," which included Eights's incursion in the Antarctic.⁸

Helen S. Wright, in 1918, had not advanced any further. "J.N. Reynolds...had accompanied Palmer in the latter's voyage during the years 1829-30 when the 'Seraph' and 'Annawan' made a cruise northwest of Palmer's Land. Reynolds was accompanied by two other scientists on that expedition with Palmer."⁹

Well before this time, scientists had begun to refurbish the image of Eights, although even in zoology, the change had not come without some substantial authors who preferred the certainties of old. The picture is clearest in regard to the pycnogonid, *Decolopoda australis*. In the year when new specimens of Eights's perfectly good species came to light, Dr. J.C.C. Loman announced from Amsterdam that Eights had somehow produced and named "ein irrationelles Monstrum." The French zoologist, E.L. Bouvier, actually had a specimen of a ten-legged pycnogonid in hand but dismissed it as a species of

another genus, thinking its possession of the unheard-of ten legs "une anomalie sans grand valeur," a freak of nature.¹⁰

The breakthrough began with Thomas V. Hodgson's description of a new pycnogonid found by the "Discovery" Expedition in McMurdo Bay. It had five pairs of legs and was given the new scientific designation of *Pentanymphon antarcticum*. However, the ferment had already been initiated by the studies of an American zoologist, Leon J. Cole, who, previous to this date, had turned up Eights's paper and was thus prepared quickly to call it to the attention of both Hodgson and the rest of the scientific community. Cole alerted Hodgson, who was almost immediately able to tap resources of the "Scotia" Expedition to another section of the Antarctic and describe a species that tallied in all respects with the species that Eights had described long before. All of this information he promptly shared with the scientific world — and as promptly delivered a stinging rebuke to Loman.¹¹

It is unknown whom Leon J. Cole contacted in Albany in 1904, when he first began to worry the long-laid ghost of Eights. Happily, he was persistent and early in 1905 he made the acquaintance of John Mason Clarke in the New

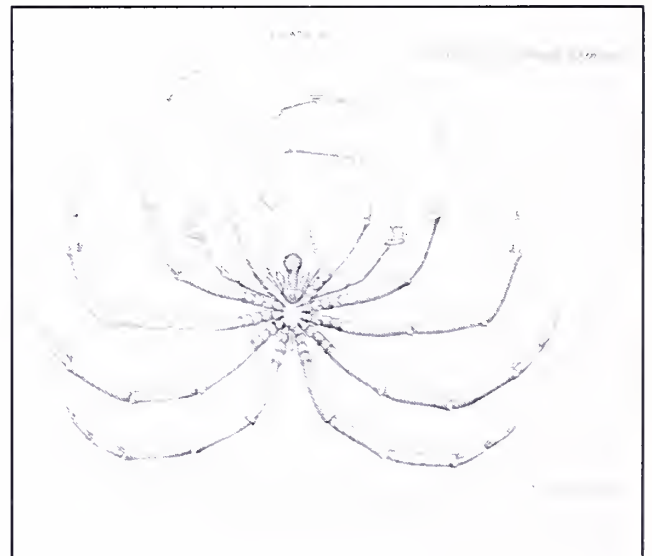


Figure 25.1. Recognition comes to James Eights! His long-discredited *Decolopoda australis*, drawn from a specimen collected by T.V. Hodgson, and figured in his report, *Proceedings of the Royal Society of Edinburgh*, volume 16, plate 3, 1905.

York State Museum. That was the happiest discovery he could have made — doubtless more for the rest of us than for immediate enlightenment of Cole himself, for Clarke was not immediately to help Cole very much. By then, Cole had fired off a letter to Hodgson and was himself authoritatively reviewing the ten-legged pycnogonids. The value of Cole here is that he clearly set Clarke thinking about James Eights — with the results that we know well.

Cole's letters to Clarke are not known. Some at least of those written by Clarke in reply (because he was a New York State official and his correspondence is pertinent to the official archives of the State) are available. It appears that Cole first wrote on 18 Mar 1905 to Clarke; some part of this letter perhaps survived in summarized form in Clarke's biography of Eights in 1916. Clarke's replies to that letter are dated 20 Mar and 29 Mar 1905 and are quoted below. It is clear that Clarke knew next to nothing about Eights at that time, aside from recognizing his name.¹²

Clarke's first letter to Cole follows:

"March 20, 1905.

"Leon J. Cole, Esq.,
"37 Mallen [?] Street,
"Cambridge, Mass.
"Dear Sir:-

"I have before me your letter of the 18th of March making inquiry in regard to Dr. James Eights and his collection.

"It is not surprising that the younger generation has lost sight of Dr. Eights and his work. In his day, however, he was a well known character not alone in scientific circles in Albany but throughout the country. Dr. Eights must have passed off the scene about 1850. I have heard my predecessor in office, Professor James Hall, who died a few years ago at the age of nearly ninety, characterize Eights as being the possessor of the keenest scientific mind that Albany had ever known. As a young man he was a good deal of an artist and his pictures of Albany one hundred years ago are now highly prized by their possessors and have been often copied. Dr. Eights was a doctor of medicine but coming from a family of substance he seems to have practiced his pro-

fession but little. Early in life he got into bad habits and on that account it was arranged that he should go as zoologist on the Wilkes Exploring Expedition. One of his contemporaries still living here and formerly a member of our staff has told me that he acted so badly on that trip that when the expedition reached Patagonia he started off to walk home.

"As to Eights collections, I should think there would be some chance of finding trace of them in the National Museum. It is quite probable that some of his specimens were placed in the collection of the Albany Institute. The Institute is still alive and vigorous but some years ago it transferred its scientific collections to us. Before that date, however, much of the material had been disordered and I suspect that the zoological specimens were destroyed. With regard to these, however, I will make some definite inquiry. Some of the material that came to us from the Institute collections was of extraordinary historic value. It seems to me that you could find some account of Dr. Eights in some of the biographical encyclopedias. What I am writing is simply what I can recall from relations to me by a few of his contemporaries. I have in my collection two miniatures, one made when he was a young man and the other not long before his death when his countenance had assumed a singularly rubicund aspect. If I can ascertain anything further in regard to the specimens collected by him I will advise you.

"I recall the fact that when he described the crustaceans you refer to it was regarded as a living trilobite and you will find some reference to it and I think an illustration of it in Amos Eaton's Text-book of Geology. Of this work there were several editions and if you have not the reference to it convenient I shall be pleased to look it up for you.

"Very truly yours
[carbon copy unsigned]."

Note that Clarke was so ill informed about Eights at that time that he thought he may have died about 1850, that he had been a member of the Wilkes Exploring Expedition and that more

could have been learned about Eights in biographical encyclopedias! Presumably, Clarke's information concerning Eights's early bad behavior and how his family got him placed on an exploring expedition came from Ebenezer Emmons, Jr., although he ought to have known better. Clarke's interest, however, was piqued and he quickly came up with an important piece of information, as shown by a short letter to Cole dated 29 March 1905. "My dear sir: On looking up with more care the history of Dr. Eights I find that he was naturalist in the scientific corps in the American Exploring Expedition, consisting of the brigs *Seraph* and *Annawan* under the command of Captain B. Pendleton and N.B. Palmer, sent out in the year 1829 under the direction of Captain Edmund Fanning, who was the patron of many south sea voyages. The expedition also had some measure of government patronage."¹³

All this adds up to a dismally incomplete picture of James Eights in the city of his long residence a mere quarter-century after his death. There is, however, abundant evidence that Clarke did not forget Eights, although no documentation of his activities comes to light until 1915. He had by then stirred up some local interest. Henry Sage Dermott, Curator, First Presbyterian Church in Albany, reported to an Eights relative that he "had been given a photograph from a friend's attic. It was said to be a likeness of Dr. Jonathan Eights. Dermott and the State Geologist [that is, John Mason Clarke] thought it was a likeness of James Eights."¹⁴

By late in 1915, John Mason Clarke was primed to present his revived — and revised — portrait of James Eights, a "Reincarnation," as he called it. The opening salvo came from the *Albany Argus* on 14 December. "One of the most remarkable features of the Albany Institute and Historical and Art society lecture courses this winter will be the lecture on 'Reincarnation of James Eights, artist, Artic [!] explorer, Albanian,' to be given on Thursday evening of this week at the Institute building, by Dr. John M. Clarke, director of science and the State Museum. Dr. Clarke has made a very careful research into the life history of this remarkable but little known Albanian....Dr. Eights, possessed of extraordinary scientific genius, is remembered to-day chiefly as

the author of well known paintings of this old city as it looked during the early days of the 19th century. He was a man of other distinctions, however....It was said of him by his contemporaries that Albany had never produced a man of so eminent abilities in science as he." This was accompanied by a reproduction of one of two portraits of Eights that Clarke had, showing him at the age of 25.¹⁵

Another Albany newspaper featured the upcoming Clarke lecture on Eights on 15 December. It was illustrated by a reproduction of the second portrait in Clarke's possession, showing him at the age of about 40 (although mistakenly said to show him at the age of 25). Along with a summary of Clarke's remarks prepared for the lecture, it was also announced that "Mrs. William Gorham Rice has loaned her collection of paintings by James Eights for exhibition in the lecture room of the Albany Institute and Historical and Art society to-morrow evening."¹⁶

In February 1916, John Mason Clarke's biography of Eights, after an incubation period of ten years and long the definitive account, appeared. Its title, "The reincarnation of James Eights, Antarctic explorer," was apt. It is unfortunate that today the main use to which this essay must be put is to point out what Clarke did not know or got wrong. While Clarke had not been idle in the previous decade, we know little of the sources of his information and to whom we owe the misinformation that he incidentally promoted.¹⁷

Clarke made a good bit of early thoughts about an Antarctic voyage of "discovery" (of new islands rich in seal skins and oil for the Yankee sealers, be it said), as early as 1812 — spoiled by the Congress that supported the idea by its own declaration of war against Great Britain. He made the expedition of the *Seraph* and the *Annawan* of 1829 to be a similar — if somewhat low-key — national voyage of discovery, overlooking the dismal politics that scuttled President Adams's heroic effort to give a leg-up to sealers among his constituents.

Clarke does not tell us how he determined that James Eights was born in 1798 — and certainly, he was *not* "born in Albany...in his father's fine Dutch house, which stood at the corner of

North Pearl and Columbia streets." Clarke mistakenly supposed that his early years were spent among the old Dutch families of Albany and that so impressed him that he was then inspired to produce the street scenes, alleged to show Albany as it was about 1805. Clarke had been assured by Albert Lawtenslager ("now a man ninety-four years old") "that these pictures were made while Eights was still a lad." Clarke, to his credit, doubted that.¹⁸

Clarke was on sound ground when he exposed the almost total neglect of Eights and his expedition in the official records of Antarctic exploration to that time; he accounted it particularly odd that even American periodicals "ignored Eights entirely though steeping their pages with the work of other explorers." He quoted at length from Eights's natural history account of 1833, particularly emphasizing the many geological observations, where Eights so long anticipated other workers.

Clarke did not realize that Eights was as much the pioneer botanist as geologist in Antarctica, and that his own museum had several of Eights's plant specimens. He thought that Eights's second paper on Antarctic crustaceans (on *Glyptonotus*) appeared "a year or two later" than the initial account of 1833, when in fact it was published 20 years later, even though in the same volume of the Albany Institute *Transactions*.

Then, Clarke recounted how Leon J. Cole began reminding the world of its debt to James Eights, when new Antarctic research revealed additional ten-legged pycnogonids, at first similar to, then identical with, *Decolopoda australis*.

Clarke had Eights writing for *The Zodiac*, "in the years from 1835 to 1840" and alluded briefly to his geological interests (although he was not aware of Eights's brief official connection with the New York Natural History Survey!). He then recounted Eights's disastrous effort to join what became known as the Wilkes Exploring Expedition.¹⁹

Clarke was mistaken to observe that Eights's ultimate assignment as paleontologist "of a marine expedition seems a reduction to the lowest terms," considering that the entire theory of coral reefs and atolls (on which Darwin and Dana made themselves famous) was almost

entirely prehistory. It is by no means clear that Reynolds preferred Dana over Eights — or that Reynolds was at the end the king-maker of the scientific corps, even if he were as antipathetic to Eights as Clarke made him to be. Clarke had it right that John Torrey had second thoughts about Eights when Dana appeared on the scene. We have to realize that Dana had the power to change men's minds. Clarke put it well when he observed that "Dana...went as 'mineralogist' and came back as a zoologist of high distinction. Perhaps Eights, with his experience and versatility, might have done as well."²⁰

For the rest, John Mason Clarke was either on insecure ground or chose to hedge his bets. After Eights's failure to go on the Wilkes Expedition of 1838, Clarke claimed that he essentially vanished. "There are no records of Albany that tell of Eights's activities during the years that followed. Only the directories show his occasional presence up to 1853 [sic]." Noting Eights's evident interest in Indians, Clarke reported "Mr. Lawtenslager has intimated that after the sailing of Captain Wilkes, Eights did go out among the western tribes, but if under government auspices I have found no record of it." It can hardly be correct that there "is no evidence among the very full documents in my possession relating to the Geological Survey that Eights had any official connection with it." He supposes — incorrectly, I am sure — that Eights may have been drawing, without status, for the senior Ebenezer Emmons, not directly for the State. He does note Eights's 1852 paper, "Observations on the geological features of the post tertiary formation of the City of Albany."²¹

Clarke ended his account of Eights by writing off the final decades, aside from the account of the post-tertiary deposits of Albany, after the disappointment in regard to the exploring expedition of 1838: "of what remained of his life [that is, the second half of it!] little is to be said further, or little known, and even that is hardly worth the telling." This means that Clarke knew nothing of any of Eights's various later writings, the foray into Michigan's copper district, his work in the Gold Fever Years in North Carolina in the 1850s, or his visits to Panamá and the Rio Grande late in that decade. He quoted

Lawtenslager (who came to Albany in 1848 and with whom Eights roomed "in the 50's") to the effect that Eights was then penniless and dependent upon his charity. Clarke had also heard — but declined to share the gossip — of a disappointment in love. He claimed that Eights, "in his growing feebleness...sought the home of a sister living in Ballston," where he died in 1882.²²

Let the second decade of the twentieth century end with an echo of Clarke's pioneering effort to raise the ghost of James Eights. In 1920, the New York State Botanist, Homer D. House, wrote an account of Eights for Kelly and Burrage's biographies of American men of medicine, alluding to Eights's supposed status as a doctor. A close paraphrasing of Clarke's biography of 1916, House's report differed in pointing out that fragments of Eights's Antarctic and southern research were still in existence. He cited Eights's plants that were in the collection of L.C. Beck, in the herbarium of the New York State Museum.²³

With the House biography, we begin the decade of the 1920s. It was as silent in regard to James Eights as any of the decades of the last 30 years of the nineteenth century. One would hardly have guessed that the tide had already turned with the rediscovery of *Decolopoda*, Leon J. Cole's astute probing, and the preliminary sleuthing by John Mason Clarke. Call it a period of gestation, for Eights began to blossom in the decade of the 1930s. One vehicle of Eights's later recognition — the Thacher Park memorial tablet — had its roots in the present period but a discussion of it properly belongs to the next chapter.

NOTES

1. J.M. Clarke, "The reincarnation of James Eights, Antarctic explorer," p. 191, put it well: "I must say here that the records of the whole long life of James Eights are so particularly fragmentary that a diligent search has resulted in a mere matter of shreds and patches." Still, the shreds and patches were mainly the result of Clarke's diligent research — and we must be grateful to him for his efforts. Clarke, in his biography of James Hall (died 1898), pp. 55-56, wrote: "I have heard Hall characterize [Eights] as the best informed man in natural science he ever knew."

2. W.A. Taylor (as "the Acting Editor"), "A history of Antarctic discovery," pp. 541-546.

3. George Murray, ed., *The Antarctic Manual for the Use of the Expedition of 1901*, pp. 346-347.

4. H.R. Mill, "A bibliography of Antarctic exploration and research"; in George Murray's *The Antarctic Manual*; the fabulous "1830(?)" voyage to Graham land, "with the American brigs *Seraph* and *Annawan*," by Edmund Fanning, is noticed in Mill's "Chronological list of Antarctic voyages from 1701 to 1900," p. 519. Still, under date of 1830, Mill made no reference to any such American expedition and it was not until the year 1834 (p. 533), that he listed the first London edition of Fanning's *Voyages Round the World*, which contained Captain Pendleton's report "of the first American exploring expedition, patronized by the United States Government." Of course, in that edition of Fanning, there was no reference to Eights.

5. H.R. Mill, *The Siege of the South Pole*, p. 112. He alluded to Reynolds's claim that American sealers had "pursued their work on uncharted [Antarctic] coasts," and hoped that research in the sealing archives at Stonington would clarify America's role in Antarctic exploration. (He referred to contemporary research by E.S. Balch.) There is a reference to the neglected Reynolds in H.R. Mill, "South Polar explorations in the last hundred years," p. xxviii, in E.H. Shackleton's *The Heart of the Antarctic*.

6. E.S. Balch, *Antarctica*, pp. 91-92. American insistence on "Palmer Land," as opposed to the British "Graham Land," clouded matters early on and for many years afterwards, even though there was, along the way, some confusion whether "Palmer" was Nathaniel (as it ought to have been, if "Palmer" at all) or his brother Alexander.

7. E.S. Balch, "Antarctica addenda," pp. 85-87. His claim that the log of the brig *Annawan* existed was apparently not correct. Claims that Nat Palmer actually saw "Palmer Land" were quite circumstantial.

8. E.S. Balch, "Stonington Antarctic explorers," see especially pp. 486-489. Balch helped to clarify the role of Benjamin Pendleton in the 1829-1830 expedition: while nominally in command of the expedition, he and his *Seraph*, Balch concluded, had nothing to do with the *Annawan* (and Eights and his work) in the Antarctic. Eights was not mentioned. There is a "List of American expeditions to the Antarctic"; on pp. 491-492, of the expedition of 1829-1831, we hear only of "Scientists John [!] N. Reynolds, Watson."

9. Helen Saunders (Smith) Wright, *The Seventh Continent*, pp. 78-79. Her statement that Reynolds was "a member of the United States Exploring Expedition" incorrectly implies that he was connected with the so-called Wilkes Expedition.

10. Jan Cornelis Christiaan Loman, "Decolopoda Eights oder Colossendeis Jarz," 1905, was quite unkind in his dismissal of Eights's discovery. Eugène Louis Bouvier in 1905 was unwilling to shake the boat; he put his supposed anomalous ten-legged pycnogonid (without any discussion of Eights) in the genus *Colossendeis*, previously established for eight-legged forms; see "Observations préliminaires sur les pycnogonides recueillis dans la région antarctique par la mission du 'Français,' 1905, p. 295. By 1906, Bouvier was forced to reconsider his action in "Nouvelles observations sur les pycnogonides recueillis dans les régions antarctiques au cours de la campagne dirigée par M. Jean Charcot," pp. 16-19; here there was a full discussion of Eights and of Hodgson's and Cole's recent discoveries.

11. T.V. Hodgson, zoologist on the "Discovery" Expedition, "On a new pycnogonid from the South Polar

regions," pp. 459-462, pl. xiv (no mention of Eights). Leon J. Cole, in a paper dated by himself 12 Jan 1905, "Ten-legged pycnogonids, with remarks on the classification of the Pycnogonida," pp. 405-ff., called attention to the first Hodgson paper — and pointed out that Eights had long preceded him in describing a ten-legged sea-spider. He had been unsuccessful ("about a year ago," therefore in 1904) in finding out anything about Eights in Albany and had, unaccountably, been unable to find the type specimen in the collection of the Boston Society of Natural History. Hodgson, 1905, "Scotia collections. — On *Decalopoda* [sic] *australis*, Eights — an old pycnogonid rediscovered," pp. 35-42, pl. iii-iv. See: Hodgson, "Decalopoda [sic] and Colossendeis," 1905, pp. 254-256; J.M. Clarke, "The reincarnation," p. 199.

12. J.M. Clarke, "The reincarnation," p. 199. Clarke to Cole, 20 March, 29 March 1905, NY State Archives BO 561 Box 11. I have been unable to find any evidence that Cole's side of the correspondence was kept by Clarke and no repository of Cole's papers for this era has been discovered.

13. John Mason Clarke Papers (as State Geologist), N.Y. State Archives, BO 561, Box 11. There must have been additional correspondence that has not survived, for in 1915, he was still exchanging letters with Cole, as indicated in Clarke, "The reincarnation," p. 199.

14. Letter from Mildred Sharpe, 20 Sep 1988, quoting family correspondence.

15. Albany *Argus*, 14 December 1915. Clipping in Albany Institute. The Institute's invitation card for Clarke's lecture, to be given Thursday evening, 16 December, began: "WHO WAS JAMES EIGHTS? / Physician, artist, explorer — a man of exceptional talents, yet to-day almost forgotten....In connection with the lecture there will be an exhibit of Dr. Eights' paintings and other souvenirs of interest."

16. An Albany newspaper, clipping in files of Albany Institute, 15 December 1915. Information quoted was summarized from Clarke's biography of 1916, by then no doubt already in the hands of editors. No details were given of which paintings in Mrs. Rice's collection were exhibited.

17. Clarke, "The reincarnation," February 1916. This essay was evidently pretty much the public lecture that Clarke had given in Albany the previous December.

18. Clarke, "The reincarnation," pp. 190, 191. Clarke assumed that Lossing was the *author* of the 1857 account of old Albany, where Eights's early street scenes were pirated. Since the original manuscript by Eights has been lost, we shall never know if he claimed himself to be "an Albany Knickerbocker — a Dutchman of the purest Belgic

stock." In any case, Eights could claim Dutch affinities, even if the matter of his surname is a puzzle. Lawtenslager's innocent fiction as to the age of the paintings no doubt paralleled a popular conviction of the time. Many later critics and commentators who ought to know better, have been unduly literal in accepting the date of "1805."

19. Clarke, "The reincarnation," pp. 200-ff. Clarke had it partly right, partly wrong, a good bit muddled. The great agitator for the expedition, he wrote, was "John N. Reynolds." Clarke claimed, for reasons unknown to me (and contrary to fact, I believe), that "Reynolds...did not want Eights at all." Eights was said to have acknowledged his appointment "in June, 1837." Clarke could find no reason for the final elimination of Eights from the roster of scientists. He did not indicate whether he had evidence of remuneration for wasted time, in Eights's appeal to Congress.

20. Clarke, "The reincarnation," pp. 200-201. Clarke was the first of several highly placed historians to fault Reynolds, both for his obvious shortcomings and, in a pinch, for whatever went wrong. For example, p. 201, footnote 7, he characterized Reynolds's "anonymous letters publicly addressed to Secretary Dickerson on the subject of the expedition," as "hardly to be surpassed for personal indelicacy, disrespect for high place and rudeness of address," a sentiment made much of later in this century by H.H. Bartlett (1940). However much one might not like to have been the target of Reynolds's attacks, what has this to do with ultimate truth? And consider "personal indelicacy...rudeness of address" in the public press in our time!

21. Clarke, "The reincarnation," p. 202; it is likely that more can be found in State Archives and in the papers of major participants in regard to the status of Eights's connection with the State Natural History Survey in 1836. As for western travel, there is still no evidence of it. Friends, as has been noted, urged his removal to the West in the early 1850s, but apparently to no avail.

22. Clarke, "The reincarnation," p. 202. No one else has cited the Lawtenslager connection and it needs further evaluation. As has been documented in earlier chapters, Clarke muddled nearly all references to Eights's final decade of life. Thus, John Mason Clarke. I must record my thanks to a student, Ann Haggerty, who chose to write a term paper on Albany's pioneer naturalist James Eights and introduced me to James Eights by way of Clarke's paper.

23. H.D. House, on Eights, in H.A. Kelly and W.T. Burrage, eds., *American Medical Biographies*, pp. 355-356. House did not allude to any other Eights specimens.

TWENTIETH CENTURY: THE 1920s AND EARLY 1930s

In this period, James Eights pretty much relapsed into the obscurity that preceded his encouraging rediscovery early in the present century. While the world had not forgotten that event, not much notice of it was taken either.

A competent botanist, W.B. Turrill, wrote a history of botanical exploration in Chile and Argentina in 1920. He did not mention Eights, even though he listed some other collectors of specimens in W.J. Hooker and G.A.W. Arnott's "Contributions towards a flora of South America and the islands of the Pacific."¹

In a long and generally sound chapter on the Pendleton and Palmer expedition of 1829–1830, John Randolph Spears mentioned Eights casually, but the account was taken largely from contemporary newspapers and Jeremiah N. Reynolds ("an energetic young Yankee" — Yankee, he was not — he was born in Pennsylvania and grew up in Ohio) got most of the spotlight. There was no mention of Eights's scientific advances.²

John Mason Clarke had not forgotten Eights but, in his biography of James Hall and its history of early geological work in New York, could do little more than allude to his own efforts to revive interest in him.³

Even on home ground, Eights did not fare well. In an anonymous article on the print collection of Ledyard W. Cogswell, Jr., in 1927, both the life and the works of Eights received a muddled treatment. No date of birth was mentioned and his drawings of Albany street scenes were supposed by the writer to be authentic scenes of

Albany in 1805. One scene showed the steeple of a church not erected until 1814 and it was speculated that "a later artist" had added that.

Jonathan Eights was said to have "administered the oath of Hippocrates himself" to young men whom he had "trained to study symptoms."

James Eights, it was said, "a half century after he had trotted the globe and lived for years in Philadelphia...returned to Albany where had been born and where he had played as a child." The changes he saw are said to have inspired him to recreate the scenes of his childhood. It is alleged that he did this when he was 84 years old, so that youths of 1857 might know the changes that had occurred!⁴

W.L.G. Joerg's commentary on problems of polar research (1928) found no reason to memorialize James Eights.⁵

Even though Eights's Albany street scenes remained his strong point, Harry Twyford Peters's work on early American lithographs and lithographers (1931) found little on Eights that was memorable. His city of residence was "Unknown," and he was merely "Artist of view of 'Church & Market Streets, Albany, 1805,' published by Knickerbocker & Co. Also did some of the illustrations for Imbert in Colden's 'Canal Celebration.'"⁶

In 1933, another aspect of Eights's life work was recognized, if somewhat tangentially. A bronze tablet was erected on a cliff-face in John Boyd Thacher Park (now a New York State park), in Eights's beloved Helderbergs. It commemorated pioneering geologists. The names of

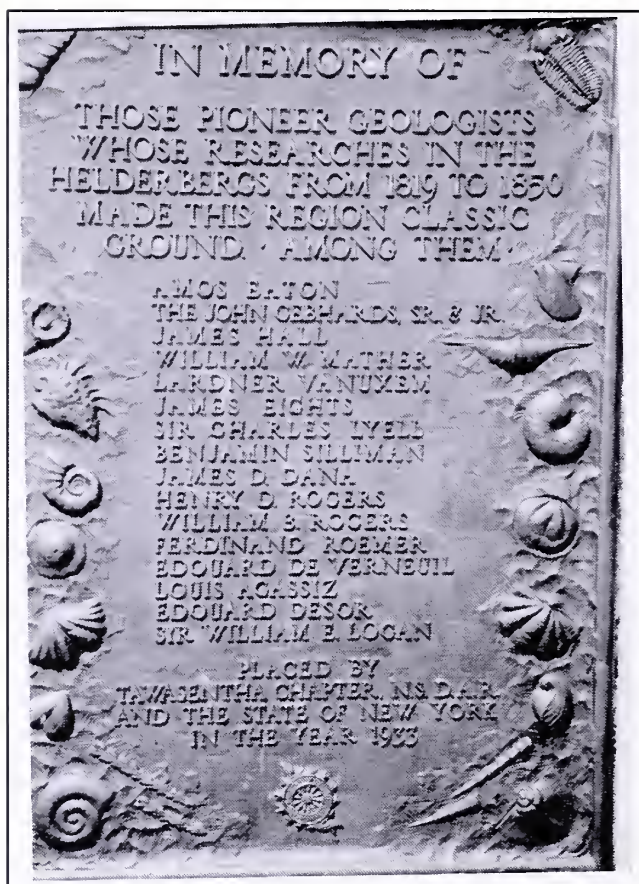


Figure 26.1. Memorial tablet, installed by the Tawasentha Chapter of the Daughters of the American Revolution, in 1933. The inspiration for including the name of James Eights can only have been the work, appearing posthumously, of John Mason Clarke (1857-1925).

the famous are on it in a kind of apostolic succession: Amos Eaton, John Gebhard, Senior and Junior, James Hall, William W. Mather, Lardner Vanuxem, James Eights, Sir Charles Lyell, Benjamin Silliman, James D. Dana, Henry D. Rogers, William B. Rogers, Ferdinand Roemer, Edouard de Verneuil, Louis Agassiz, Edouard Desor, Sir William E. Logan. It was, the plaque reads, erected "IN MEMORY OF / THOSE PIONEER GEOLOGISTS / WHOSE RESEARCHES IN THE / HELDERBERGS FROM 1819 TO 1850 / MADE THIS REGION CLASSIC / GROUND."

Well and good — but who compiled that list of names? Who was responsible for the memorial tablet in the first place? Especially, who in 1933 would have placed James Eights in such high company?

Contemporary accounts of the tablet tell you nothing about its original inspiration. The ultimate answer must lie hidden in the history (as yet, inadequately written) of that distinguished geologist, devoted historian of New York geology and salvager of the memory of James Eights, John Mason Clarke.

Now, Donald W. Fisher attributes the Thacher Park tablet directly to Clarke. That can hardly be true, since Clarke died in 1925. I have no doubt that Clarke planted the seed for it, even as "his winning ways" may have secured the initial gift by Emma Treadwell Thacher of 350 acres of the Indian Ladder area in 1913, a memorial to her husband, the Hon. John Boyd Thacher, as Fisher claims. But where is the proof?⁷

The fullest account of the placing of the memorial table, with its rather full history of the Thachers, the park and the tablet itself, appeared in 1935, in Raymond H. Torrey's "John Boyd Thacher Park." While Torrey's introduction had ample notice of many of the great and near-great among geologists who studied in the Helderbergs, it did not notice James Eights. By his account, the tablet was the entire inspiration of the Tawasentha Chapter of the Daughters of the American Revolution, a notion that appears to have been promoted by that organization in all contemporary notices of the matter, both in-house and in the public press. In an address by David H. Newland, State Geologist, the name of James Eights appears — with James Hall, William Mather, and Lardner Vanuxem, he was one among "the Albany group of geologists." There is nothing in Newland's address to hint at any origin of the memorial other than as an inspiration of the DAR.⁸

None of the contemporary Albany notices of the Helderberg memorial to early geologists known to me mentioned either James Eights or John Mason Clarke. The *Albany Evening News* on 25 November 1933 merely announced that Mrs. Chris A. Hartnagel, of the Tawasentha Chapter, had received a congratulatory telegram from the President-General of the DAR in recognition "of her work in connection with the erection of the historic marker to Pioneer Geologists, in Thacher Park on Nov. 5." The *Albany County Post*, 1 December 1933, got little beyond that: "When

members of Tawasentha Chapter, Daughters of the American Revolution, met recently with Miss Grace Slingerland, they honored Mrs. Chris A. Hartnagle [!] for the part she had in securing the Memorial to geologists, which Tawasentha chapter placed in Thatcher Park early this month [that is, November]....Mrs. Hartnagle, as Regent, presided at the meeting. Reports of officers and chairman were given and the final report of the retiring committee which had charge of the Historic marking to geologists. A beautiful corsage bouquet of pink roses was presented Mrs. Hartnagle [!] by members of the retiring committee....The presentation of the floral token to Mrs. Hartnagle [!] followed the passing of a resolution by chapter members thanking her for her supreme efforts in bringing about the achievement of the memorial."⁹

Archives of the Tawasentha Chapter, D.A.R., are even more specific in regard to the role of Mrs. Hartnagle in promoting the notion of a memorial tablet to early geologists in the Helderbergs, with next to nothing being said about the contribution of her husband, geologist Chris A. Hartnagle.¹⁰

According to the minutes of the Tawasentha Chapter, D.A.R., meeting 16 May 1933, "Mrs. Hartnagle announced that following up an idea, she had recently inquired of Dr. Flick [A.C. Flick, State Historian] whether he would be friendly to a project of placing a bronze tablet on the cliffs of John Boyd Thatcher [!] Park, to the geologists who had pioneered there from 1819 to 1850 in Helderberg geology, including such men as Amos Eaton of Rensselaer Polytechnic Institute, John Gebhards [!], father and son, of Schoharie, James Hall, James Dana, Wm. W. Mather, Henry D. and Wm. B. Rogers, Sir Thos. [!] Lyell and Louis Aggasiz [!].

"Dr. Flick rec'd the idea enthusiastically and next day visited the park with Mrs. Hartnagle. It was their conclusion that a tablet 2 1/2 x 3 1/2 feet would be appropriate, and Dr. Flick said that he would back the project thru the State appropriations to the extent of \$200. Mrs. Hartnagle laid the matter before the members of the Chapter for action."

The matter was approved. "Mrs. Joslin moved that the Regent [that is, Mrs. Hartnagle]

be Chairman and choose her own Committee to prepare for the marking. The motion was seconded & carried."

On 21 November 1933, the Tawasentha Chapter met and summarized matters. "Dr. Flick has arranged that the amount paid by the State for the Memorial Tablet shall go through our Treasury & we shall have 100% credit. The State pays \$200, and we the rest. Expense to date is \$270, exclusive of programs. \$150 for cast — 50 Modelling — 25 Empire Granite Works — 45 Travelling expenses of Cast-bronze etc. If we hadn't gotten our bid in early, the expense would have been greater.

"A congratulatory letter from Mrs. Griemes to the Regent was read....At this time the following letter of appreciation by the Chapter to the Regent was read by Miss [Miriam] Best,

Madam Regent,

I believe that the record of this memorable event will be incomplete without an acknowledgment of the efforts of you and your husband to bring it to fruition. It is my recollection that the placing of this Marker was first suggested by you, to which the Chapter gave its hearty approval. The many grave problems which presented themselves were most ably handled by you and your committee.

For the design of the marker which perhaps has no counterpart in the State of New York, we are indebted to the ability and efforts of your husband, Mr. Chris A. Hartnagle.

The program was most appropriate in each detail for such an occasion, which will long be remembered by all who were present. ..."

There was a vote of thanks to Mrs. Hartnagle and a motion was made and approved that this tribute "be spread upon the minutes of this meeting, to be left as a lasting record of the Chapter's love and appreciation of their Regent, for the work which she did in making the unveiling of the tablet at Thatcher [!] Park, possible."

With this, we enter upon the years of the later 1930s and onwards, a time when the name of Eights became a firm part of the history and technical literature of Antarctic exploration.

NOTES

1. W.B. Turrill, "Botanical exploration in Chile and Argentina," p. 59.

2. J.R. Spears, *Captain Nathaniel Brown Palmer, 1922*; see Chapter XI, "Another memorable exploring expedition," pp. 111-129. Eights is mentioned on pp. 122, 124; a few matters were muddled and it is not clear when the *Annawan* and *Seraphi* returned.

3. J.M. Clarke, *James Hall of Albany, 1923*; Eights was mentioned pp. 55, 56, 101. On p. 55, Clarke noticed the official connection of Eights with the Geological Survey of 1836, as assistant to Lardner Vanuxem in what was then called the Fourth District of New York. In spite of the fact that Eights had had "a career of exploration in the Antarctic and an experience in many branches of natural science far more varied and comprehensive than that of any member of the Survey" (p. 56), Clarke found remarkably little to say about Eights in the entire near-century of New York science that he carefully catalogued. Due to a typographical error, Clarke (p. 56, note 2) had Eights die in 1883. While Clarke, p. 101, reported Eights present in the meeting in 1838 in the house of Ebenezer Emmons when the Association of American Geologists (later American Association for the Advancement of Science) was born, this is otherwise undocumented.

4. Anon., "Old Albany prints," *The Knickerbocker Press Sunday Magazine*, 25 Sep 1927, pp. 2-3, 18. It is hard to understand the boner about Eights's age in 1857. Eights's supposed Albany boyhood is typical myth; his return after a long absence is even more fanciful. It appears that when one found a lacuna in the record of a person's whereabouts, he must have been in Philadelphia!

5. W.L.G. Joerg, ed., *Problems of Polar Research*, failed to mention any of Eights's contributions, even though papers by experts on Antarctic botany, zoology and zoogeography were included in the symposium.

6. H.T. Peters, *America on Stone, the Other Printmakers to the American People*, p. 170. There is no reason to suppose that Eights was in any way in the hire of the Imbert lithographic firm.

7. D.W. Fisher, "John Mason Clarke: James Hall's protégé-successor," p. 117. Actually, I find no contemporary account that links Clarke to the origin of the Park. For a prime mover, by today's standards at least, he was remarkably self-effacing! For a full early relation of the preservation of the Indian Ladder area, see George Frederick Kunz, "John Boyd Thacher Park," 1914, the year

the land was actually dedicated. Not only was Clarke not mentioned in Kunz's quite long account, but Kunz's list of early geologists differs considerably from the one finally used. There are 16 names on the tablet; Kunz's list (pp. 349-351) identified 21. Most notably for us, James Eights was not among them: nor were the Gebhards, Silliman, Roemer, De Verneuil, and Desor. John Mason Clarke was modest enough about his role, if any, in the acquisition of Thacher Park ("Tenth Report of the Director of the Museum," 1913 [1914], p. 40). He noted: "Geologists in many parts of the world will be interested in the announcement recently made of the gift to the State of New York as a public park, of the 'Indian Ladder' and its adjoining portions of the Helderberg mountains escarpment in Albany county, New York....the Helderbergs and the Indian Ladder...are really a classic ground in American geological science....And over this splendid picture generations of geologists have gazed, for the Helderbergs have been the Mecca of geologists for well-nigh a century." But, note: no list of names! Geologist Winifred Goldring, in "Geology of the Berne Quadrangle," pp. 47-53, outlined the history of the park; she noted (p. 53, f.n. 1) the tablet but indicated nothing of its origin.

8. R.H. Torrey, "John Boyd Thacher Park," pp. 3-28; D.H. Newland's address is pp. 18-20. It would appear that a major accomplishment of John Boyd Thacher (1847-1906), while a two-term mayor of Albany, was "making State Street a dignified approach to the Capitol by eliminating the use of the street as a market" (biographical notice of Thacher, pp. 24-25). There was no notice of any role of John Mason Clarke in all this, beyond his presence at the formal dedication on 14 Sep 1914 (p. 25). Mrs. Chris A. Hartnagel's name (p. 18) was inadvertently given as Mrs. "Charles" Hartnagel.

9. Anon., 25 Nov 1933, "DAR regent gets tribute for marker"; Anon., 1 Dec 1933, "Tawasentha Chapter D.A.R. honors Mrs. Hartnagle [!]."

10. Lona C. Perkins, Regent of the Tawasentha Chapter, D.A.R., kindly provided information from both the Tawasentha Chapter's scrapbook of clippings and from manuscript minutes (her letters of 10 and 21 Oct 1988). Additional assistance came from Sally Stevenson, Librarian, State University at Albany, and Elva B. Crawford, Archivist, Office of the Historian General, National D.A.R. Chris Andrew Hartnagel (1874-1962) was a geologist with the New York State Museum from 1905 to 1941, its State Geologist from 1941 to 1944. His wife, always referred to in the local press as Mrs. Chris Hartnagel, was Edith J. Munsell Hartnagel.

FAME CLAIMS JAMES EIGHTS, 1933–1960

Aside from the Thacher Park tablet in 1933, that decade got off to a slow start. With the fanfare attending Richard E. Byrd's adventures in the Antarctic, however, popular and governmental attention turned intermittently toward the Far South. Despite the turmoil brought on by World War II (and, to some extent, because of it), austral regions retained some hold on the public interest. While the correction of old injustices mattered to some, to others the chief interest was to solidify America's claim to a share in the poorly known Antarctic continent. The rediscovery of James Eights did a little of both. It eased somewhat the national conscience, for a neglected hero emerged. It also helped prove to the world that we had long had a claim of some substance in the South Polar continent.¹

Recognition came leisurely. E.M. Sheppard, in 1933, concluded authoritatively that Eights's *Serolis trilobitoides* is a perfectly acceptable species.²

Eights's ten-legged pycnogonid, *Decolopoda*, won him further fame. W.T. Calman and Isabella Gordon, in 1933, described a twelve-legged sea-spider, *Dodecolopoda mawsoni*, and added an informed nod to James Eights. Quite obviously intrigued by what he had found in regard to Eights, Calman then dug into the record and produced in 1937 a great tribute to Eights. It improved in several ways over Clarke's account of 1916, stood alone for a decade, and is still useful for its zoological perspective.³

Calman's account of Eights, "James Eights, a Pioneer Antarctic Naturalist," was given as the

presidential address to the Linnean Society of London in 1937. Because of his own interest in pycnogonids, he emphasized that group; but he also evaluated Eights's various Antarctic animals (and included Eights's illustrations of *Serolis* and *Decolopoda*). He summarized Eights's life as known to him, added a significant amount of new material, elucidated the roles of Pendleton and Nathaniel and Alexander Palmer, quoted in its entirety Eights's letter to Amos Binney (1834) in regard to *Decolopoda*, and gathered a useful preliminary bibliography of 19 Eights publications.

Eights's name gained some recognition in respectable zoological circles when Robert Cushman Murphy (1936) accepted as probably correct, his reports of the king penguin in the South Shetlands, a notable extension of the current range.⁴

Eights still did not fare so well in what may be called the received version of the history of Antarctic research. In 1940, Harley Harris Bartlett barely mentioned him, hardly bothering then to distinguish him from Jeremiah N. Reynolds, of whom he disapproved. Neither Bartlett nor a fellow symposiast, George Smith Bryan, took note of Eights's early nomination to accompany the Wilkes Expedition. With them, their business as historians was clearly restricted to consideration of the final participants.⁵

As late as 1943, the director of the Albany Institute of History and Art, J.D. Hatch, Jr., expressed doubt to Charles C. Adams, Director, New York State Museum, that Dr. James Eights

the scientist was the artist of the early street scenes. Adams quickly put him to rights and sent him a copy of John Mason Clarke's account of Eights to prove his point. Hatch was anxious to clear up the matter before his staff undertook a contemplated exhibition of the street scenes.⁶

Matters took a dramatic turn when Lawrence Martin, Chief, Division of Maps, and Incumbent, Chair of Geography, Library of Congress, presented a rousing account of Eights to the Eighth American Scientific Congress in Washington in 1940. It was deceptively titled "Early explorations and investigations in southern South America and adjacent Antarctic waters by mariners and scientists from the United States of America." After a brief nod to Nathaniel Palmer and Benjamin Pendleton, he referred to the "five scientific investigators" who accompanied them (Eights, Watson, Reynolds, and two unnamed associates) as "the first persons from the United States of America who carried on scientific investigations" in the area indicated. And: "Eights of Albany is the great name in the group. He was a trained physician and an accomplished naturalist, adorning the science of geology, including glaciology, and being highly competent in botany and zoology as well." Carrying on from the recent sound revisionary treatment of Eights by Calman, Martin firmly placed Eights's name in a prominent light, ushering in the modern era for James Eights, when hardly a historian of Antarctic science fails to notice him.⁷

Martin went into great detail in regard to Eights's explorations. He mentioned "several landings" of the *Annawan* in Patagonia (incorrectly dated January 1830). Eights collected at Staten Island (plants are listed, taken from Joseph Dalton Hooker; evidently, Martin did not know that William Jackson Hooker has previously used some of Eights's plants). He was wrong to suppose that Eights collected plants and marine invertebrates in "extreme southern Chile...shortly after January 22, 1830." (The date is incorrect.) Martin incorrectly supposed that Eights was on Pendleton's *Seraph* while Watson and Reynolds were with Nathaniel Palmer on the *Annawan*, during the Antarctic venture. (They were all on the *Annawan*.)⁸

Martin was insistent. Eights's geological studies were detailed and seminal; sea life was noticed; geographical advances were made. "Eights anticipated Charles Darwin some nine years in observing glacial boulders carried in or left by floating icebergs and deducing from them the geology of unvisited lands poleward from the points of observation." While Eights supposed the unvisited lands insular, Martin now knew "it was actually a portion of the Antarctic mainland west of the Palmer Peninsula, a part of the *terra incognita* which Admiral Richard E. Byrd mapped by airplane flights from the 'Bear' in 1940." Martin was unaware that Eights returned to the United States in 1830, supposing (as authorities have mistakenly continued to do) that in "southern Chile, where the 'Seraph' and the 'Annawan' operated together in 1830-31, Eights presumably continued his geological, botanical, and zoological studies, chiefly in the lands adjacent to the Chonos Archipelago, the Gulfs of Ancud and Corovado, the Island of Chiloé, and adjacent islands and waters." Martin concluded: "Eights's field work in Patagonia and Isla de los Estados [Staten Island] in Argentina, and near Cape Horn in Chile, is one of the very early professional scientific investigations in the coastal regions of South America, as well as in the South Shetland Islands and South Pacific Ocean not far north of Antarctica, by a technically qualified scholar from North America."⁹

Even though his 1940 paper was widely reprinted, Martin was not finished with Eights. Notice of his final paper, an expansion upon one of his early themes, belongs here, even though not published until 1949 (manuscript received by editor, 28 August 1947). In "James Eights' pioneer observation and interpretation of erratics in Antarctic icebergs," Martin began his account: "One of the high points in initial world knowledge of glacial geology is the astute interpretation by the great English naturalist Charles Darwin, in 1839, of glacial erratics in South Indian Ocean and South Atlantic Ocean icebergs as indications of the nature of bedrock in Antarctica. It may now be shown that Darwin was anticipated by some 9 years in this discovery. His predecessor was the American geologist James Eights of Albany, N.Y."¹⁰

This matter has been alluded to previously. I cover here only the part of the story that pictures Eights as the neglected pioneer. Martin recounts the Darwin record in detail — all based upon astute use of the observations of others. However, in Eights's case, Darwin at first failed to learn his name (he hastily overlooked it, in the French report where he learned of it). Later, he corrected himself to the extent of claiming that he had not been able to find an account of the American expedition in question.¹¹

Again, Martin incorrectly had Eights on the *Seraph*. He quoted Eights's statement that rounded pieces of granite were to be found lying about on the islands, whereas the bedrock of the islands themselves was not granite. They were, Eights thought, "brought...by the ice-bergs from their parent hills on some far more southerly land." Martin pointed out that the logbook of the schooner *Penguin* reported: "Landed on one {ice-berg} & got a specimen of rocks which are not found at Shetlands." Surely, Martin observed, "no one except Eights" could have told the log-keeper that the boulder was an erratic. Eights, Martin noted, expanded upon all this, describing boulder-carrying icebergs in detail — in contrast to Darwin's second-hand report of a single boulder.¹²

While Eights was cautious about crediting the existence of an Antarctic continent as the source of glacial erratics, he was convinced that "there were extensive groups or chains of islands yet unknown" in that direction. Martin pointed out that since no such island chain exists, "it is perfectly safe to say that the Albany scientist forecast the existence of an important portion of the Antarctic coast in 1830." It therefore seemed just to Martin that "In 1943 the United States Board on Geographical Names paid the following well-deserved tribute to Eights, adopting the place-name Eights Peninsula for 'the peninsula between Bellingshausen Sea and Amundsen Sea in latitude approximately 71° 20' S., longitude approximately 98° W., named after James Eights, scientist on the brig *Seraph* [!] of Stonington, Connecticut, Benjamin Pendleton, Master. Eights, while sailing probably within 85 miles of this peninsula in 1830, first deduced the existence of at least 450 miles of adjacent Antarctic lands.'"¹³

Martin thought it appropriate that Eights should be thus memorialized. He pointed out that Darwin's name shows up on maps as "Mount Darwin, a peak 6890 feet in height in Tierra del Fuego, as well as the 6200-foot Darwin Mountains near the coast of Victoria land, the Mt. Darwin on the west side of Beardmore Glacier, and the Darwin Inlet east of Joinville Island, all three in Antarctica." Darwin, in fact, did not get as close to the Antarctic as Eights did.¹⁴

In 1947, Joel W. Hedgpeth published his learned monograph on pycnogonids, in it recounting the "melancholy story of Dr. James Eights (M.D.) and his Antarctic travels." That work led to Hedgpeth's sustained interest in James Eights. He remarked that the conviction that led zoologists to ignore Eights's ten-legged sea-spider seemed also to have kept them ready to ignore additional ten-legged forms, as shown by a specimen of a new species named by Hedgpeth that had lain unhonored since its collection in 1872.¹⁵

The decade of the 1950s began with a typically muddled newspaper account of James Eights the artist. It concerned primarily the collection of prints of early Albany gathered by banker Ledyard Cogswell, Jr. Eights emerged as "an Albany draftsman and scientific man who accompanied the Navy's first expedition into the Antarctic." The story of the appearance of the Eights drawings as unacknowledged illustrations for Lossing's *Harper's* article was retold, with allusion to Lossing's letter on how the paintings had come to him (but giving no details). Cogswell described how he and the late Col. James H. Manning had bought and shared the Eights drawings, the Manning share later being acquired by Cogswell.¹⁶

One of the earliest books on Antarctic adventure to make much of James Eights was D.M. Henderson's *The Hidden Coasts* (1953). While Henderson tried to check for local material on Eights, he did not get very far and he ended making some curious statements. He had the U.S. Board on Geographical Names giving Eights's name to a portion of the Antarctic shore, "the northern coast of Ellsworth Land — observed and charted by him" — which, of

course, is not correct. Henderson recounted the matter of glacial rocks and southern continents and the somewhat misplaced credit that Darwin received for it. Finally, he reviewed the cancelled appointment of Eights to a position on the Wilkes expedition, questioning the impartiality of selection of men who ultimately went as scientists: "Dr. James Eights...appears to have been a victim of political intrigue. His experience in the Antarctic would have aided Wilkes greatly. As it was to happen in the cruise, the head of the squadron got into difficulty about his south polar landfalls; Eights would surely have helped by painstaking observations." C.R. Roseberry's essay, "Antarctic area named for obscure Albanian" (1954), was a well-informed article on Eights. It is sad that it did not appear in a more lasting form.¹⁷

In a list of expeditions to the Antarctic (including such outlying islands as the South Shetlands), Brian Roberts in 1958 included known sealing and whaling expeditions, whether or not they made new geographical discoveries. He had it that B. Pendleton/N.B. Palmer/A.S. Palmer (ships *Seraph*, *Annawan*, *Penguin*) in 1829–31: "Visited South Shetland Islands in January-February 1830; the first government-sponsored United States Antarctic exploring expedition, accompanied by independent investigators (James Eights, J.N. Reynolds and A.J. [!] Watson). 'Annawan' and 'Penguin' searched unsuccessfully for mythical 'Swain's Island.' 'Seraph' penetrated westwards to long. 101° W., south of lat. 60° S."¹⁸

Philip I. Mitterling took a well-researched look at *America in the Antarctic to 1840* in 1959. He was not content merely to revisit established heroes. He penetrated masks of primadonnas and furnished a generally refreshing and informed picture. Considering the size of the canvas involved, he treated James Eights most generously. In his account of the expedition of 1829–31, Eights was "an experienced naturalist from Albany." He accounted Eights's scientific papers (some of which he cited) to have given him "a modicum of eminence in scientific circles." He might have admitted that such recognition was slow in coming to Eights.¹⁹

Mitterling dug far below the received version

of history in his story of preparations for what was finally called the Wilkes Expedition of 1838. In doing so, he unearthed much of the archival history of James Eights's brief involvement. The amount of propagandizing, finagling, and jostling for advantage that occurred among politicians, naval cliques, and would-be explorers and naturalists competing for turf is told for the first time. No group, of course, behaved with entire openness. Propagandists for exploration, such as Reynolds, were happy only with continued successes. Politicians would rather not act at all, or, if forced to act, had partisan or personal axes to grind. Private groups would rather government paid for advantages that accrued to them. Scientists multiplied the numbers of jobs that could be created — then, the chosen few helped secretly to eliminate "surplus" individuals when the going got rough. It is to Mitterling's credit that he saw the reality of all this and forged a story that included it and yet told the well-known history as well. In his singularly well-handled account of the ultimate sailing of the Wilkes fleet, *sans* Eights and several others, Mitterling held that both the architects of the expedition and the scientific coterie that dominated access to the official ear acted with less than candor. While Reynolds was told flatly that his services were not wanted, the "unwanted members of the scientific corps were not dismissed with similar forthrightness." With, as has previously been reported, the connivance of a few scientists, politicians eliminated the unwanted. What was actually agreed upon by those involved in the ultimate decision was epitomized by Wilkes: There would be no difficulty, if the Navy Department "will only suffer their pay to continue until the sailing of the Expedition." All this was on record but no historian of southern and Antarctic exploration had, to that date, put it so forthrightly.²⁰

There remains to be recorded a summary notice on actions of geographers to keep the name of Eights on maps of the Antarctic.

The first application of the name of "Eights" to a place in Antarctica has been alluded to above, with reference to "Eights Peninsula" (1943). Since this area, later found to be an island, not a peninsula, had been named for

Thomas R. Thurston by Admiral Byrd in 1940, the Eights name was conserved by applying it to the coast of the Antarctic just landward from Thurston Island. This name of Eights Coast has been generally accepted and gradual refinements will be noticed as pertinent. Located at 73°30'S, 96° W, between Cape Waite and Phrogner Point, overlooking the Bellingshausen Sea and bisected by the Jones Mountains, it was discovered, according to John Stewart, "on flights from the *Bear* in Feb. 1940 by members of the USAS [U.S. Antarctic Service] 1939-41....It was first explored in Feb. 1960 by the *Glacier* and the *Burton Island* during the USN Bellingshausen Sea Expedition."²¹

The transitory place name of Eights Station, on the Antarctic mainland, 75° 14' S, 77° 10' W, will be treated in the next chapter, on the fortunes of James Eights in the decade of the 1960s.

NOTES

1. Sufficient background for these views can be found in K.J. Bertrand's *Americans in Antarctica 1775-1948*. This work has been freely cited in earlier chapters. The expeditions of Richard Evelyn Byrd (1888-1957), 1928-1935, are described pp. 290-361. Byrd was also intimately involved in the U.S. Antarctic Service Expedition, 1939-1941, and the U.S. Navy Antarctic Developments Project (Operation Highjump), 1946-1947 (see pp. 407-513).

2. E.M. Sheppard, "Isopod Crustacea — Part I. The family Serolidae," pp. 323, 324-326, 326-328, plate XIV, Fig. 7. This has a synonymy and good illustrations.

3. W.T. Calman and Isabella Gordon, "A dodecapodous pycnogonid," pp. 107, 110, 113.

4. R.C. Murphy, *Oceanic Birds of South America*, 1: 344, 345. Murphy cited Eights from the quotation of his 1833 paper by Captain Fanning in 1838 — Fanning was, indeed, instrumental in making Eights's observations better known internationally than Eights's scientific colleagues were. While this king penguin record was accepted sceptically by Calman (1937: 178), later reporters have been more lenient. Brian Roberts cited Eights's work (again, by way of Fanning) in "A bibliography of Antarctic ornithology" (1941, p. 341); and Bernard Stonehouse ("The general biology and thermal balance of penguins," p. 140) supposed that king penguins had been exterminated in the South Shetlands within the last hundred years, a view that may well be correct.

5. H.H. Bartlett, "The reports of the Wilkes expedition, and the work of the specialists in science"; Eights was mentioned on p. 611, in regard to his work on the Pendleton-Palmer Expedition. Bartlett's main objective seems to have been to scalp Reynolds, not to revise the entire history of that excursion and so give Eights his due. G.S. Bryan, "The purpose, equipment and personnel of the

Wilkes expedition," failed to mention Eights. In 1941, William Herbert Hobbs, a historian of Antarctic discovery anxious to memorialize American exploration, got no further in recognizing Eights than to list him by his last name only (p. 21), as a "scientist" on the Palmer Expedition.

6. C.C. Adams, J.D. Hatch, Jr., exchange of letters, 23 and 26 April 1943, AIHA archives. Hatch thought Clarke incorrect to infer that Eights's scenes were based on "a memory or a tradition of houses and streets." He thought them reconstructions "based on exacting knowledge of property footages," a view that may be correct, although he did not elaborate.

7. Lawrence Martin's "Early explorations and investigations" was read 11 May 1940, as noted in his own corrected typewritten copy sent to The Mariners' Museum, Newport News, Virginia. (I thank Kathryn B. Braig for a photocopy of this.) It appeared in print in full in the *Proceedings of the Eighth American Scientific Congress*, pp. 43-46, of volume IX, History and Geography (1943). A lengthy abstract of it, prepared by Martin, appeared in the *Congressional Record* (vol. 86, Appendix, pp. 3194-3195), as an "Extension of remarks" by Congressman James A. Shanley (Connecticut) on 23 May. Shanley quoted the full title but entered his remarks in the *Congressional Record* under his own title of "Credit for the captains of Connecticut's clipper ships." Martin's abstract was again published, with shortened and somewhat misleading title, in *Nature* (London), as "Early explorers of southern South America from the United States" (17 Aug 1940).

8. Martin, "Early explorations and investigations," pp. 43, 44, 45. Eights could not have collected in "extreme southern Chile" until after his visit to the Antarctic.

9. Martin, "Early explorations and investigations," pp. 44, 45.

10. Martin, "James Eights' pioneer observation and interpretation of erratics in Antarctic icebergs," p. 177. Of course, "9 years" means the time of Eights's observation and the time of publication of Darwin's statement. Eights's work was not published until 1833, some six years before Darwin's publication.

11. Martin, "James Eights' pioneer observation," p. 178. Clearly, Darwin had not seen Eights's 1833 paper on *Brongniartia*, with its notes on the natural history of the South Shetland Islands; nor had he read Fanning's reprinting of Eights's South Shetland natural history in 1838.

12. Martin, "James Eights' pioneer observations," pp. 179-180.

13. Martin, "James Eights' pioneer observation," p. 180. Martin gave no precise source for the quotation from the Board on Geographical Names; it was likely a decision reported in a processed memorandum of limited circulation. It is, of course, probable that the genesis of the decision owed something to Lawrence Martin. The decision was summarized for press release 5 Jan 1944 by the U.S. Board on Geographical Names: "Eights Peninsula: Antarctica. The peninsula between Bellingshausen Sea and Amundsen Sea, terminating in approximately 71° 20' S, 98° 00' W. (Not Thurston Peninsula.)" This release further reported: "*Eights Peninsula* is named for James Eights, scientist on the United States Brig *Seraph* [not correct, of course] of Stonington, Connecticut, which sailed within 80 miles of this peninsula in 1830. The scientific records of this cruise show that Eights first deduced from observations of natural phenomena the existence of some 450

miles of adjacent Antarctic land." (I am indebted to Raymond E. MacNamara of the U.S. Defense Mapping Agency, 28 December 1977, for a copy of this memorandum.) Eights Peninsula was later found to be an island. It was charted as a peninsula by Admiral Byrd as early as 1940 and named Thurston Peninsula (later Thurston Island) (Stewart, *Antarctica*, 2: 1015). In 1947, the name of Eights Peninsula officially reverted to Byrd's Thurston Peninsula. See: U.S. Board on Geographic Names, "The Geographical Names of Antarctica," 1947, p. 241. (In 1960, the name Thurston Island was adopted officially, upon realization that it was not a peninsula.) To avoid entanglements and to keep the Eights name permanently on maps of the Antarctic, the name Eights Coast was coined for a stretch of coast extending from about 88° W. to the base of the supposed Thurston Peninsula (p. 241). (See also: U.S. Board on Geographic Names, *Antarctic Gazetteer*, 1956, p. 118; and Stewart, 1: 296.) This matter is further pursued in note 21.

14. Martin, "James Eights' pioneer observation," p. 180. Martin was somewhat justified in wondering (p. 181) why Darwin had not learned of Eights's account.

15. J.W. Hedgpeth, "On the evolutionary significance of the Pycnogonida," pp. 9-10, including especially footnote 3. The beautifully illustrated account of ten-legged forms occupies pp. 9-33. Hedgpeth also reported (footnote 3, p. 10) the rediscovery of what is no doubt Eights's original specimen, something that Cole had searched for unsuccessfully 40-odd years before.

16. "Birthday gift started Ledyard Cogswell, Jr., private collection of prints of early Albany," Anon., 6 August 1950.

17. D. M. Henderson, *The Hidden Coasts, a Biography of Admiral Charles Wilkes*, pp. 31, 41. Ledyard Cogswell, Jr., learned that Henderson was "looking into the expedition of the U.S. Navy to the Antarctic in the early part of the last century." See Cogswell to Henderson, 24 February 1950; AIHA Archives. He asked for any further information that Henderson found on Eights: He had found only that he was born in 1798 "and was a member of the first expedition by the Navy. It has been said that because he could not go on the second expedition his life was broken." Henderson replied, 26 February 1950 (AIHA), giving Cogswell some information that he had found. He considered Eights to have been unjustly treated. "When I finish my book, I will have sympathetic mention of Eights." Considering that the book was a biography of Wilkes, Henderson did well by Eights. C.R. Roseberry, in "Antarctic area named for obscure Albanian," took note of such contemporary works as Henderson's work and had digested material thoroughly. It seems unlikely that Eights did the Albany street scenes as early as the late 1820s; Roseberry was correct to call them reconstructions. I doubt his statement that James assisted his father as a doctor in the cholera scare in 1832. The article was well illustrated,

including a reproduction of the Twitchell portrait (uncredited in the article).

18. B. Roberts, "Chronological list of Antarctic expeditions," p. 111. The extent of government support was exaggerated (thanks to Fanning's self-serving claims of 1838) and Watson was given yet another set of fore-initials.

19. P.I. Mitterling, *America in the Antarctic to 1840*, pp. 97, 99-100, 101. He was incorrect to say that the *Seraph* and *Annawan* met off Long Island.

20. Mitterling, *America in the Antarctica to 1840*; for the propagandizing, see pp. 101-ff. Political maneuvering is well handled; friends of exploration were older and wiser than when President Adams and Secretary Southard attempted to get a miserably unprepared expedition on the high seas in 1828-1829, pp. 102-110. For the elimination of Reynolds, the nefarious maneuvering of navy personnel and politicians, and the efforts of chosen scientists to save their skins (and those of certain friends), see p. 127.

21. Lawrence Martin's account (1949) of application of the Eights name in 1943 has been cited, note 13 above. See: J. Stewart, *Antarctica*, pp. 296, 1015. Reference to the original exploration during the U.S. Antarctic Service Expedition may be found in K.J. Bertrand, *Americans in Antarctica*, pp. 421-422; see Bertrand's detailed map, p. 418 (it incorporated information to about 1970). For further details, see U.S. Board on Geographic Names (etc.), 1944; 1947: 160, 261; 1956: 118, 302; and 1969: 57, 196. A long account of Eights Coast may be found in U.S. Board of Geographic Names, *Geographic Names of Antarctica*, 1956, with its detailed list of criteria for applying names, pp. 5-6, its list of expeditions, pp. 13-14, and, especially, its description of Eights Coast (p. 118): "that portion of the coast of Antarctica along the S. shore of Bellingshausen Sea, extending from about 88°00'W., to Cape Flying Fish, in about 100°50'W. [But note comments in reports of 1969 and 1995, below.] Named by the US-SCAN [United States Special Committee on Antarctic Names, 1943-1947] for James Eights of Albany, N.Y., geologist on the *Annawan* in 1830, who carried on geologic investigations in the South Shetland Is., and who cruised westward on the *Annawan*, in company with the *Penguin*, to 103°W. Eights, the earliest American scientist in the Antarctic, discovered the first known fossils in the Antarctic region, a tree section, in the South Shetland Islands. As a result of these investigations Eights, in 1833, published...what proved to be remarkably accurate observations and conclusions on the natural phenomena of the region." For Thurston Peninsula (now Thurston Island), see this work, p. 302. The summary in the Board's *Antarctic Gazetteer* (1969, p. 57) adjusted Eights Coast to 73°30'S, 96°00'W; Eights Peninsula had been changed to Thurston Island, 72°06'S, 99°00'W. F.G. Alberto, *Geographic Names of the Antarctic*, 2nd ed. (1995), p. 214, retains the location given in 1969; for Thurston Island, see p. 746.

JAMES EIGHTS: THE END OF A SECOND CENTURY

In the period from 1960 to the present, James Eights has frequently appeared in publications treating the history of Antarctic exploration. In 1970, Herman R. Friis referred to Eights as "a kind of unsung early U.S. antarctic scientist." Friis's own efforts, along with those of several other writers, have made Eights a well-sung investigator.¹

In 1961, a camp that served as a station for carrying on measurements of the earth's magnetic field and the ionosphere was established by U.S. Antarctic Research Project Sky-Hi. It was in Ellsworth Land, at the base of the Antarctic Peninsula, in the Sentinel Mountains, 75°14'S, 77°10'W. It was selected in November 1961 and construction of the camp and airstrip was completed in February 1962. It was initially called Camp Sky-Hi, housing from 10 to 11 men. "It became Eights Station in the summer of 1962-63, and housed...5 men for the following 2 winters. It was closed in November 1965."²

Some notice of Eights Station appeared in the popular press in 1962. The *New York Times* carried a Christchurch, New Zealand, report dated 2 November: "Nine men aboard a Navy DC-3 flew into Eights Station today, 850 miles from the South Pole and 1,610 miles from McMurdo Sound, to establish the first new year-round United States scientific station to be built since 1957." Eights Station, it continued, is "named for James Eights, who in 1830 was the first United States scientist to go to Antarctica." Establishment of the station "is one of the major objectives of the current program. The base will

consist of eleven packaged prefabricated buildings. Fourteen air drops by Globemasters will be required to establish and provision Eights Station." It is "located in Ellsworth Land, near the base of Palmer Peninsula....The plane that landed today will remain at the station site to serve as weather and radio post until the basic camp is prepared."³

A Durham, North Carolina, newspaper on 5 November 1962 reported much the same information: "U.S. sailors and airmen, working in 33 degrees below zero weather, have begun construction of an eleven-man upper atmosphere physics research station, which will be one of the world's most remote scientific outposts.

"Five scientists supported by six Navy men will staff the Antarctic station 760 miles from the South Pole [note difference in distance claimed by previous report] and 517 miles from New Byrd Station. The new permanent installation near the base of Palmer Peninsula will be named 'Eights Station' in honor of James Eights, the first American scientist to go to the Antarctic."⁴

E.W. Reichelderfer pointed out, in his notice written for U.S. Weather Bureau support operations, why James Eights, as "the first United States Scientist to visit Antarctica...well deserves to have his memory continued in both the section of coast and the new scientific station that now bear his name."⁵

In a short, condensed paper, Richard O. Cummings in 1962 (published 1965) celebrated the primacy of James Eights as an American scientist in the Antarctic. Notable for its use of

archival materials, it richly deserved expansion into a major narrative of Antarctic science.⁶

Cummings has Eights “a member of the teaching staff at Rensselaer Polytechnic Institute,” an error. His account of the sponsorship and ultimate organization of the ships of the expedition is excellent. His unfortunately brief quotations from New York Lyceum of Natural History Minutes are especially valuable. While “a mixture of commercial motives and scientific aims caused members to pause,” the Lyceum concluded to support the expedition. “Minutes of 12th October state that corresponding member, James Eights, ‘was willing to accompany the expedition provided he was put upon the footing of an authorized agent of the Lyceum.’ By a unanimous vote, Eights was appointed ‘naturalist to the expedition now about to explore the southern Atlantic and Pacific Oceans.’ Further, a subscription of five hundred dollars was proposed to defray his expenses.”⁷

Cummings evaluated Eights’s contributions to the expedition of 1829–1830, crediting him with treating data with scientific caution and integrity. He mentioned “substantial” collections of data, geological and zoological, giving no details.⁸

Taking a leisurely approach, where density of data was not the main aim, John West Wells in 1963 discussed James Eights’s contributions to “Early investigations of the Devonian System in New York, 1656–1836.” He characterized Eights’s “Notes of a pedestrian” as “a most readable account of the geology along the front of the Catskills southward from Ulster...into the Lackawanna Valley. Eights was a keen observer, and his descriptions of the various formations allow them to be identified with considerable certainty.” At one point Wells nodded appreciatively: “In spite of this fallacy of the consequent, his conclusion was right,” surely as happy a description by a modern expert of an amateur, loose in a world of utterly strange nomenclature and half-baked beliefs of a distant age, as could be wanted.⁹

In the 1960s, the name of Eights sometimes soared in Antarctic history, sometimes it did not. Laurence Patrick Kirwan’s *A History of Polar Exploration* (1962) is a solid work with a British

bias that did not mention Eights; Kirwan got as close to Eights as some notice of Fanning, Pendleton and Palmer, and “John R. Reynolds.” In 1963, George W. Fowler, U.S. Army, reported: “Task Group 43.5 was activated for the purpose of transporting heavy equipment and marking a safe overland route through the heavily crevassed area from Byrd Station in Marie Byrd Land, to Eights Station, located at the base of the Palmer [now Antarctic] Peninsula.” This was in “virgin territory,” a trek of 840 miles, in the most adverse weather, with mechanical breakdown common, that took 40 days.¹⁰

In its account of “Antarctic activities 1964–1965,” the National Science Foundation’s U.S. Antarctic Research Program both mapped the approximate position of Eights Station and provided a description of it. It was located at 78°18’S, 78°W; 1,500 feet above sea level 1,525 statute miles air distance from McMurdo. It was established in 1962 on inland ice where the mean annual temperature was estimated at –12.6°F. The mean summer (December–February) temperature was 11.2°F. It was supplied by air and consisted of 11 air transportable buildings.¹¹

In 1964, Kenneth J. Bertrand lectured on “American activity in the early history of Antarctica”: “In January and February 1830, 3 American vessels, the ‘Seraph,’ ‘Anawan’ and ‘Penguin,’ sealed in the South Shetlands and then cruised westward to 103° West, in an unsuccessful search for the islands reported by Captains Swain, Gardiner and Macy. Aboard the ‘Anawan’ was James Eights, the first American scientist and one of the first scientists of any nation to visit the Antarctic. His work, published in now-obscure American journals of the day, is still valid. He discovered an unknown species of sea spider and the first fossils found in the Antarctic. From glacial erratics at the South Shetlands and in icebergs, he inferred the existence of a large continent to the south.”¹²

S.W. Greene, in “Plants of the land” (1964), recalled Eights’s discovery of the grass now called *Deschampsia antarctica* in “the 1820s” in the South Shetlands.¹³

In 1965, the New Zealand Antarctic Society Survey, in *Antarctica*, edited by Trevor Hatherton, noticed Eights’s early collections. R.K. Dell, cov-

ering marine biology, called attention to Eights's bivalve mollusk, *Nucula eightsi* Couthouy (now *Yoldia eightsi*). George A. Llano, reporting upon the Antarctic flora, noted the "grass *Deschampsia antarctica* Desv., first described by [Sir William Jackson] Hooker in 1837 [as a species of the genus *Aira*], after a specimen collected by Dr James Eights of Albany, New York, on the South Shetland Islands during a voyage of 1829-30...the first flowering plant reported from the Antarctic."¹⁴

It remained for E.J. Godley (1965) to provide the first thorough review of Eights's contributions to Antarctic and southern botany. While Skottsberg (1954) wrote that he could not trace the collections at the New York State Museum, Godley had been assured that the Eights specimens were there. Further, "a duplicate set or a portion of the collection had come into the hands of Sir William Hooker in England and there has been some speculation as to how this came about." Godley also noted that Skottsberg was misled by either poor handwriting or an inaccuracy, for he credited some of Eights's specimens to a mythical "Rev. Berkeley" — in fact, they were inaccurately credited by Hooker to "Dr. Beck," who, as we have seen, as a curator of the Albany Institute, had sent Eights's specimens to Hooker. Eights's plants were received "by Sir W.J. Hooker in time for the Compositeae [alone] to be included in the last parts of Hooker and Arnott's 'Contribution towards a flora of South America and the islands of the Pacific.'" Eighteen species of composites, attributable to Eights were listed, five of them considered new.¹⁵

The name of Eights, in some way, became a regular part of the history of Antarctic research. In *A Continent for Science* (1965), Richard S. Lewis recounted the story of the Pendleton-Palmer Expedition. He considered President John Quincy Adams to be interested in exploration of inland America, while certain "private citizens...were interested in the Antarctic." "Nathaniel Palmer joined two other men, an imaginative sea captain named Edmund Fanning and one Benjamin Pendleton, in promoting a voyage, raising funds principally from whaling and sealing interests. In 1830 [!] the first

American Antarctic expedition set sail in a ship called the *Annawan*, which cruised the seas to the north of the present Ellsworth Highland. Members of the expedition explored the South Shetland Islands, but did not sight the mainland." Aboard the *Annawan*, "was an Albany naturalist, James Eights, who was conducting research under a five-hundred-dollar grant from the New York Lyceum of Natural History." Lewis described Eights's main contribution as his recognition "as evidence of continental land to the south the displaced rocks and boulders, called erratics, that he found on the beaches of the sub-Antarctic islands."¹⁶

In 1968, the National Archives hosted a conference on U.S. Polar Exploration (published 1970). In it, Herman R. Friis, of the Center for Polar Archives, wondered where one might find the published papers of "James Eights, perhaps the first U.S. scientist to visit and to do fieldwork in the Antarctic." Herman M. Dater commented on the contribution of the sealing industry to our knowledge of Antarctica: "During 1829 and 1830 three sailing vessels carried the first U.S. scientists, including James Eights, of Albany, New York, to the Antarctic. The papers that Eights published after his return contain observations and deductions that remain valid." Kenneth J. Bertrand noted that "James Eights of Albany, New York, sailing aboard the brig *Annawan* in the combined sealing and exploring expedition sent out by Captain Fanning and his associates, 1829-31, was the first U.S. scientist to visit the Antarctic. He made significant contributions to scientific knowledge by writing seven papers." Bertrand also referred to the value of the log of the *Penguin* in documenting the whereabouts of Eights during that expedition, the log of the *Annawan* having been lost.¹⁷

In 1968, the American Association for the Advancement of Science sponsored a symposium on *Research in the Antarctic*, in which Joel W. Hedgpeth drew attention to James Eights and his early contributions to Antarctic science. Its chief value, other than keeping the name of Eights current, lay in its reprinting of some of Eights's papers. Hedgpeth's bibliography of Eights's papers added somewhat to that offered by Calman. His comments on some of Eights's

later works on Antarctic and southern parts are especially valuable, since they point to rather overfree use of Darwin's material without any attempt to offer credit.¹⁸

A major account of the role of James Eights in Antarctic exploration appeared in 1971, with publication of Kenneth J. Bertrand's *Americans in Antarctica 1775-1948*. It was even-handed in its credits, sober in its judgments, thorough and scholarly in its documentation. Bertrand's use of archival materials (both in Washington and elsewhere) was full and carefully cited. This work has been alluded to many times and little attention need be given it here.¹⁹

The only points of substance where I differ from Bertrand's conclusions are: his intimation that Eights returned on the *Annawan* in 1831 (perhaps, indeed, some part of his specimens were among materials returned by the *Annawan*); a statement that Eights "gave" his specimens to the Albany Institute (he sold them); and a claim that crew lists and outward cargo manifests for the *Annawan* are among Port of Stonington Custom House Records on file at the Federal Records Center, Waltham.²⁰

Eights was briefly credited with early collecting of plants in D.C. Lindsay's account of South Shetlands vegetation (1971).²¹

While documentation is sometimes not easy to follow, there is a gold mine of information on Eights in William Stanton's account of the Wilkes Expedition, with its thorough use of material in both national and private archives. There is a full history of the Pendleton-Palmer Expedition of 1829-1830, easily the best to appear. In the midst of so many machinations, personal, political, and social, Eights, of course, looms small. Reynolds gets his due, Wilkes is shown to have been in the thick of maneuvering as far back as 1828 — and to have been as successful in promoting himself then as in 1838. The intensity of professional jealousy and of political animosity ought to surprise nobody. While "it was difficult to ascribe much scientific importance to the enterprise," it did bring back some "fifteen chests of specimens to the collections of learned societies." "The sweeps of the *Annawan* and *Penguin* in their search for land were of value in establishing its absence....James Eights' work admittedly was of

a high order [publications are listed or alluded to]....But like Reynolds, who carved only a few literary pieces out of his journals...Eights published few of his observations and these only sporadically in a variety of journals over the next two decades. His labors constituted a purely personal triumph in a region that would become significant only for the opportunities it offered science, which he had been the first to seize." Scientists, Stanton wrote, were disappointed that the expedition had become merely a scheme to catch seals; private investors in the enterprise were even less pleased, grumbling "that they were out of pocket for having attempted to give aid to science." It is surprising that, at so late a date, Stanton had Eights attached to the *Seraph*.²²

In Stanton's long chapter on "Symmes' Hole," the Expedition of 1829 was but a beginning. For Stanton, the Palmer-Pendleton Expedition was a step toward a bigger picture. The same chapter then ended with the genesis and early history of the Expedition of 1838: to Stanton, all parts of a continuous drama. His next chapter, "A glorious prospect," considered the early organization of the scientific corps of the 1838 expedition, much of it the work of Reynolds. As we have seen, after brisk nudging from many quarters, Secretary of the Navy Dickerson finally announced his choices for the civilian scientific corps; Eights was to go as expert in organic remains. In the long months that lay ahead, feelings intensified. "Eights was in poverty as usual," as were most others, as they gave up jobs and waited. This story has been related in a previous chapter and owes much to Stanton's close-grained scholarship.²³

In 1975, Henry M. Dater's essay on "Motivations for Antarctic exploration" appeared. As might be expected, the work of sealers and whalers in opening up the area was noticed, as was that of the one U.S. effort to combine sealing with scientific investigation: "the Pendleton-Palmer expedition of 1829-1831. As a business venture it was a failure, but James Eights...produced some scientific papers of enduring value." Dater continued, in annotating detailed maps, in reference to the 1829-1831 expedition of Pendleton and Palmer, sponsored by "Edmund Fanning, Benjamin

Pendleton, and public subscription": "James Eights, naturalist aboard the *Annawan* made remarkably accurate observations on the geology of the South Shetland Islands and described the first fossil recorded from the Antarctic, a piece of carbonized wood. Eights also described new species of crustaceans found in the coastal waters of the South Shetlands. He recorded several species of land plants, and described seals and dolphins, though he did not know their scientific names. His descriptions of birds included the King penguin, which is now unknown in the South Shetlands. Using observations of winds, currents, plant and animal life, and ice-transported boulders, Eights concluded that an extensive land area existed to the south....Eights subsequently published several papers on his work in the South Shetlands — the first scientific work on the Antarctic published by an American."²⁴

John F. Spletstoesser thought it appropriate, during the U.S. bicentennial year (1976), to honor James Eights of Albany, "the first U.S. geologist to set foot on land south of the Antarctic Convergence." Eights "described the first fossil recorded from the Antarctic, a piece of carbonized wood, and made remarkably accurate observations on the geology of the South Shetland Islands."²⁵

In 1979, Clark A. Elliott, biographer of American scientists, accounted James Eights worthy of notice. Several mostly minor quibbles can be registered but it put Eights firmly among deserving early American scientists.²⁶

The most significant advance in Eightsian scholarship in the 1980s appeared early in the decade in work of two enthusiastic historians, Char Miller and Naomi Goldsmith. They significantly modified and supplemented work done earlier in the century by John Mason Clarke, W.T. Calman, and Joel Hedgpeth. Their biography of Eights presented for the first time a generally well-rounded and probing history of the man, citing many original documents for the first time; and Miller's bibliography radically revised notions of Eights's contributions to natural history over his long life.²⁷

Miller and Goldsmith emphasized that Eights's contributions to science and, perhaps

especially, to the popularization of science had been underestimated and misunderstood. Not only was he actively publishing long after John Mason Clarke had him a disappointed and virtually moribund man, but the breadth of his interests extended far beyond his Antarctic research, which had received all the attention since Clarke's "reincarnation" of him in 1916. His scientific work (with Amos Eaton and in promotion of the Albany Lyceum of Natural History and Albany Institute) had been overlooked. While admitting that in original research, Eights did little beyond his early work in the Antarctic, they found that his contributions to "conservation and public policy" kept him active "almost to his eighth decade" — "he published nine papers before 1838 but fifty-six after that date," with most of the latter papers having never been cited by biographers.²⁸

Miller and Goldsmith pondered the alleged reason for Eights's underhanded dismissal from the Exploring Expedition of 1838, finding nothing beyond Wilkes's statement that Eights's "habits were not of the best," whatever that may have meant. They surmise that it referred to excessive drinking, which I suspect to have been true, as far as it was a legitimate reason and not just a trumped-up excuse. Their querying speculation that homosexuality was ever involved is, as they thought, ungrounded. Inferences from Clarke's statements that any such thing was ever suspected seem to me without basis, since Eights's so-called "association with Albert Lawtenslager, an 'old companion,'" was overblown by Clarke and was demonstrably of short duration in any event, given the little we know of Eights's life. I consider as entirely untenable a notion that Eights had any particular knowledge of narcotics and opium ("haschisch"), for his allusions to that matter (if his at all) were slight, being mere quotations from other sources.²⁹

Char Miller's bibliography of the publications of James Eights greatly expanded our knowledge. In it, besides recapitulating recent information on the life of Eights, Miller produced an annotated list of writings that more than tripled the number of works previously attributed to him.³⁰

William J. Zinsmeister, Antarctic paleontologist, in 1988 called attention to the primacy of Eights in regard to fossils: "Although the first fossils to be described from Antarctica were from Seymour Island [1892–1893], the first report of fossil remains from Antarctica was nearly 80 years earlier by James Eights (1833), a member of the First American Expedition to Antarctica in 1830. While visiting one of the islands in the South Shetland group near the northwest tip of the Antarctic Peninsula, Eights (1833, p. 64) reported seeing...a fragment of carbonized wood inbedded in the conglomerate....Although Eights did not mention which island he landed on, recent discoveries of wood and plant fossils on King George Island suggest that Eights probably found the fossil log there. He made no mention of collecting the fossil, and the absence of any subsequent description indicates he probably left it where he found it."³¹

Geologist John F. Splettstoesser (1988) also called attention to the Eights report of a piece of carbonized wood from the South Shetlands. He recalled Eights's "vivid and accurate" geological observations, his realization of "the significance of erratic boulders found in Antarctic icebergs," an observation that anticipated Darwin by six years. "Eights theorized correctly that a major continental land mass existed to the south" of the track of his expedition. Splettstoesser notes: "the seven papers published by Eights on the Antarctic represent the first scientific writing on the subject by an American."³²

Eights was not the only naturalist of his generation exploring Austral regions whose work was ignored by dunderheaded officialdom. This is poignantly illustrated by John Davenport and G.E. Fogg's account of invertebrates collected during the *Erebus* and *Terror* Antarctic expedition (1989). For us, a major point of interest were drawings by Joseph Dalton Hooker that *did* survive but were never used, including an apparently still undescribed ten-legged pycnogonid. The authors opine that entrenched experts viewed Hooker's drawings as they did Eights's report, as a violation of received truth.³³

Several notices of Eights appeared in R.K. Headland's excellent list of Antarctic expeditions (1989). The South Shetland Islands are described

and mapped. The "United States sealing voyage" of Pendleton and the Palmer brothers (1829–31) is described; its "independent investigators [including James Eights]...made biological and geological investigations and collections (including fossil wood). *Annawan* and *Penguin* searched unsuccessfully for the mythical 'Swain's Island'...; *Seraph* penetrated westwards to 101°W, below 69°S." Various uses of the name "Eights" in the Antarctic are noticed.³⁴

In the decade of the 1990s, James Eights merited occasional notice. Professor G.E. Fogg, especially, continued to call attention to Eights because, as he writes, "To my mind he was the first scientist of the 'modern' type to work in the Antarctic." Fogg and David Smith (in *The Explorations of Antarctica*) noted Edmund Fanning's role in organizing "the first United States exploring expedition to the Antarctic. This was not altogether successful but it did result in some excellent studies of the geology and zoology of the South Shetlands. These were the work of James Eights who emerged from obscurity with the half-dozen or so scientific papers he wrote on his Antarctic work, only to return to it again for the rest of his long life." They refer to Eights's drawings of Albany street scenes and noted his "fine zoological drawings" and his appreciation for the beauties of the South Shetland scene.³⁵

Being convinced that "the history of science in Antarctica is worth writing about and that it should be attempted by a single author," Fogg set himself the task of doing just that. The result was *A History of Antarctic Science* (1992). Even in so enormous a project, Eights is amply noticed. The Expedition of 1829–1830 is described fully. The portrait of Eights at about the age of 25 is reproduced, as is Eights's drawing of the ten-legged pycnogonid. A pretty thorough analysis of Eights's contribution to the natural history of the South Shetlands is given, with special reference to geology, zoology, and botany. Eights's primacy in regard to the notion of continental origin of rocks in icebergs, fossils, vascular plants, and frost action are recorded. Four of his papers are cited. He is credited with being "an acute and accurate observer and a good draughtsman."³⁶

Even though not precisely an Eights-related item, the bronze tablet honoring early geologists in the Helderbergs (of whom Eights was one) in John Boyd Thacher State Park was made much more readily available to viewers by a new platform in 1992.³⁷

Slight notice of the *Annawan* and its captain and the scientific staff came from Jorge Berguño B. in "Las Shetland del sur: el ciclo lobero" (1993). His date of 1829 for the visit to the South Shetlands is not quite correct; whether he was correct to confer upon Watson the title of "Dr." is not certain but seems unlikely.³⁸

NOTES

1. H.R. Friis, Director, Center for Polar Archives (National Archives and Records Service), to Stewart Pierson, 15 May 1970 (a copy furnished, along with the list of

publications by and on Eights that Friis supplied, by librarians of the Joseph Henry Papers).

2. J. Stewart, *Antarctica*, I: 296. Thus, the name of Eights was for a while applied to two places in the Antarctic, even though for a time some reporters thought it poorly applied to the earlier Eights Coast. In Capt. Edwin A. McDonald's "Exploring Antarctic's phantom coast" (see especially p. 263 and map, pp. 254-255), it was claimed that the Eights Coast of previous maps did not exist: instead of being the base of "Thurston Peninsula" (which became Thurston Island), Eights Coast "was not a coast at all. Instead, we had encountered an archipelago of small islands." However, this appears to be needless nit-picking and overlooks the final solution: there is nothing to prevent a "coast" from including its fringing islands. Therefore, Eights Coast need not be one of the broad guesses of another era, nor is it the fringing islands finally found in that approximate area. Instead it includes them, as shown on such later maps as that provided by K.J. Bertrand, *Americans in Antarctica*, p. 418, and others.

3. *New York Times*, Anon., 3 November 1962, p. 3.

4. A Durham newspaper clipping, Anon., 5 November 1962, supplied by Mildred C. Sharpe, 20 September 1988. Note difference in distances from previous entry.

5. F.W. Reichelderfer's well-informed remarks appear as a short account in *Bulletin of the U.S. Antarctic Projects Officer*, 4(1), p. 20, October 1962.

6. R.O. Cummings, "The organization of the American Antarctic expedition of 1830." This report has notable material on participation of the New York Lyceum of Natural History in planning of the expedition. It is sad that so little original material is quoted in this telegraphic account.

7. Cummings, "The organization of the American Antarctic expedition of 1830," pp. 1031, 1032. We have seen much of this before. Cummings leaves it unclear whether Eights collected the \$500 from the Lyceum or if any of his collection actually went there as a part of the

bargain, a matter that he might have clarified. Cummings does not explain how "Records in the Albany Institute indicate the beginning of a careful collection of specimens in the Cape Verde Islands"; I have yet to find such records. Cummings presumed that the *Annawan* had quarters for Eights and Reynolds [no mention of the others, who must have been similarly accommodated], a technical library and a store for scientific instruments," a more generous arrangement than Eights allowed. If, as he says, the *Seraph* met the *Annawan* at Staten Island, p. 1032, they did not proceed together to the Antarctic. Cummings was ambiguous, p. 1033, as to how Eights returned to Albany.

8. Cummings, "The organization of the American Antarctic expedition of 1830," pp. 1033-1034. Previous credits to Eights are reconfirmed, little critically new information emerges. Cummings joined other historians who suppose this largely failed expedition led more or less smoothly to the expedition of 1838.

9. J.W. Wells, "Early Investigations," pp. 59-61.

Clearly, Wells considered Eights a well-informed geologist, worthy of the honor bestowed upon him by his selection to participate in the New York Natural History Survey, whose detailed history is beyond the interests of Wells in this account. One may wonder what went wrong, that upstarts thrived and Eights was given an unenviable junior position of which he soon tired.

10. L.P. Kirwan, *A History of Polar Exploration* (published London, 1959, as *The White Road*). G.W. Fowler, "Eight to Eights," p. 22.

11. Anon., 1964-1965, "Antarctic activities," p. 10, map p. 9.

12. K.J. Bertrand, in *Bulletin of the U.S. Antarctic Projects Officer*, vol. 6, pp. 14, 1964. While it adds nothing to the story told in his book of 1971, K.G. Bertrand's "Geographical exploration by the United States" (in the Pacific Basin) (1967), pp. 263-264, 412-413, is a sound account of the Fanning-Pendelton-Palmer sealing expedition. He concluded that Eights was "the only true scientist" of the scientific corps.

13. S.W. Greene, "Plants of the land," in *Antarctic Research*, ed. by Sir Raymond Priestley et al., p. 247. He ably mapped various Antarctic zones, Figs. 1, 7.

14. R.K. Dell, "Marine biology," p. 143 (Fig. 37, No. 6); no detailed notice of Eights was included. George A. Llano, "The flora of Antarctica," p. 335, gave a useful taxonomic history of the grass but failed to cite fully Hooker's original description.

15. E.J. Godley, "Botany of the southern zone: exploration to 1843," pp. 158-160. Godley hewed to the line that the expedition of 1829 "was undertaken with the official sanction, but not the financial support, of the United States Government." No doubt, he says, "the main aim was to find new localities for fur-sealing." His claim that Eights was on the *Annawan*, while "J.W. Reynolds" and "J.R. Watson" were on the *Seraph* (second initials of both men are incorrect; he does not mention the two assistants), cannot be sustained. The two vessels did not proceed to Staten Island together nor did they jointly visit the Patagonian coast. He was doubly wrong in regard to Reynolds and the *Seraph*, for Reynolds was with Eights in the South Shetlands; Godley claimed that Reynolds and Watson and the *Seraph* left the other vessels at Staten Island and, "after a fruitless exploration to the westward of the Palmer Peninsula, returned north along the Chilean

coast where Reynolds and Watson explored the Auracanian country." The route by which Eights's plants got to W.J. Hooker, unclear to Godley, is now known. Godley's account of the grass, Hooker's *Aira*, is instructive. He considered Eights "the third to collect plants on the South Shetlands...being preceded by members of Bellingshausen's expedition and by W.H.B. Webster."

16. Richard S. Lewis, *A Continent for Science, The Antarctic Adventure*, pp. 14, 15. The account of the role of President Adams in initiating the expedition is somewhat incorrect. The date of 1830 given it is wrong; that the *Annawan* was apparently the only vessel of the expedition is misleading. Whether Eights really got the \$500 from the Lyceum is doubtful. His primacy in regard to the glacial erratics and their continental origin was hardly his only contribution to Antarctic science on the expedition.

17. H.R. Friis and Shelby G. Bale, Jr., eds., *United States Polar Exploration*; Friis, "The Center for Polar Archives," p. 5; H.M. Dater, "United States exploration and research in Antarctica through 1954," pp. 44, 45; K.J. Bertrand, "Writing and research on United States exploration in Antarctica," pp. 103, 105.

18. J.W. Hedgpeth, "James Eights of the Antarctic (1798-1882)," in Louis O. Quam and H.D. Porter, eds., *Research in the Antarctic* (published 1971), pp. 3-45. Eights was not, however, born in Albany; some information on how he won a place as naturalist on the Pendleton-Palmer Expedition was available even then; it was also clearly evident by then that Eights sailed on the *Annawan* (p. 3). Eights worked for the New York Natural History Survey before, not after, his denial of a place on the expedition of 1838; there is, in fact, evidence that Eights was denied that post because of "a disagreeable personality," however trumped up the charge may have been; portraits of him are known, so we do have some hint of what he looked like (p. 4). Eights's early account of the South Shetlands (in his *Brongniartia* paper) is accounted "a fresh, vivid, and significant account by a field naturalist of high ability" (p. 4); against this must be noted Hedgpeth's charge that much of Eights's 1847 account of natural history of Patagonia was lifted without credit from Darwin (pp. 44-45). Hedgpeth (p. 41) misdated the *Glyptonotus* paper of 1852 (p. 42). Hedgpeth's dating of the *Decolopoda* paper is somewhat confusing (p. 42) but his comments on that remarkable pycnogonid (pp. 42-43) are pertinent and valuable. On p. 44, Hedgpeth continued a barbaric claim that Eights wrote a paper on "a singular variety of quartz crystal from Palestine" — no paper was ever published; he merely presented a specimen to the New York Lyceum of Natural History: and it was from the village of Palatine, New York.

19. K.J. Bertrand, *Americans in Antarctica*; the parts of major interest here are: "James Eights and the Palmer-Pendleton Expedition of 1829-1831" (pp. 114-158) and parts of "The United States Exploring Expedition 1838-1842" (pp. 159-197, especially pp. 164, 191). In 1970, H.M. Dater, "United States exploration and research in Antarctica through 1954," p. 44, gave the usual short bow to the role of sealers and noted that during "1829 and 1830 three sailing vessels carried the first U.S. scientists, including James Eights...to the Antarctic."

20. Bertrand, *Americans in Antarctica*, pp. 151, 155, 156, 158. With regard to *Annawan* records at Waltham, I have been assured by J.K. Owens (letters, March/April 1992)

that this is not the case. Indeed, such information would have been used by Bertrand to document which ship Eights and other members of the scientific corps sailed on — a matter that he settled inferentially.

21. D.C. Lindsay, "Vegetation of the South Shetland Islands," p. 63. Lindsay did not mention W.J. Hooker's naming of Eights's grass, *Aira* (now *Deschampsia*).

22. William Stanton, *The Great United States Exploring Expedition*; for the expedition of 1828-1830, with references to Eights, see "Symmes' Hole," pp. 16-28. Specific references to Eights are to be found on pp. 26, 27, 386.

23. Stanton, *The Great United States Exploring Expedition*, see especially pp. 52, 64, 66 and references. Stanton's sardonic but fair handling of men and matter is splendid. The irony of Andrew Jackson as champion of a national exploring expedition is well told, as is the inept and frequently underhanded maneuvering of Mahlon Dickerson. Time and chance served some men well, some ill: but some of the heroes of the drama have dirty hands, as we ought to have known right along but for our antihistorical tendency to make myths and then believe them.

24. H.M. Dater, "Motivations for Antarctic exploration," in "History of Antarctic exploration and scientific investigation," *Antarctic Map Folio Series*, Folio 19: pp. 1-2, Sheet 2, Plate 2. The price paid by Antarctic seal herds for these small advances in scientific knowledge was incredibly high: There were virtually no fur seals to be found by the time Eights got there (p. 1).

25. J.F. Spletstoesser, Ross Ice Shelf Project, the University of Nebraska, "First in Antarctica," letter to *Geotimes*. Nothing new appeared in this letter. As with others, Spletstoesser did not note that Eights's piece of fossil wood has apparently not survived. Eights, of course, was not in the Antarctic in 1831.

26. C.A. Elliott, *Biographical Dictionary of American Science*, pp. 83-84. Elliott is correct to put Eights's Antarctic dates as 1829-1830; the expedition was not exactly "Capt. Edmund Fanning's voyage of discovery to South Sea Islands." Eights appeared in the Albany Directory later than 1853. Eights was in North Carolina in the 1850s, but not during the latter part of the decade. Dates of *Zodiac* articles and of the pycnogonid paper are incorrect. That Eights "in 1815 drew sketches of Albany that have been extensively reproduced" is unfortunately not the case; they would have been more important documents had they been based upon first-hand notes.

27. Char Miller and Naomi Goldsmith, "James Eights, Albany naturalist: new evidence" (1980) and Char Miller, "The scientific career of James Eights: an annotated bibliography" (dated 1980 but published 1982). As I have previously indicated, I am greatly indebted to both authors for many favors — most especially to Char Miller who turned over to me a considerable body of genealogical notes on the Eights family in America, as well as many transcriptions and photocopies of documents in his possession. Even in the 1980s, not everybody recalled Eights's role in Antarctic exploration. Sydney A. Spence, *Antarctic Miscellany* (1980), an annotated bibliography, listed nothing by him.

28. Miller and Goldsmith, "James Eights," pp. 23, 24. I feel it is fairer to Eights to put more emphasis upon original research than popularization. My evaluations of Eights's popularizations suggest his popular output to have been uneven, seldom incisively perceptive and some-

times no more than paraphrases of common knowledge. Miller and Goldsmith were perhaps too severe on John Torrey, who disparagingly dismissed the Pendleton-Palmer Expedition as destined "to catch seals," not contribute to science — surely, a conclusion with which Eights himself ruefully agreed. They infer (p. 29) that on the *Annawan* Eights claimed to have reached a point "nearer the south pole than any previous mortal" — a dubious claim, even if he made it; and, of course, the *Annawan* was not, at the time alleged, then "about to sail to New York." When it did sail, a year later, Eights had long since returned by other means.

29. Miller and Goldsmith, "James Eights," various pages. The authors correctly differed from many of John Mason Clarke's conclusions about Eights as regards biographical details — and thus, from the generally received story of his life up to that time, for most authors had depended heavily upon Clarke.

30. Char Miller, "The scientific career of James Eights," pointed out the pitfalls in establishing a complete bibliography of Eights's works: Most articles were published with only the initials "J.E." to indicate an author; sometimes, there was no annual author index to help out. (Published indexes of the time were notoriously haphazard; even signed articles were often ignored.) This means, minimally, that there may have been other articles written by him that were not initialled, as well as identifiable articles that have been missed by bibliographers. It also means, in another dimension, that articles may be incorrectly attributed to him, as certainly occurred in a modern index to *The Zodiac* where several articles on a visit to Europe were supposed to be works by James Eights. I suspect some articles signed "J.E." were not by him; others may well have been items that he identified for the editor as likely to be of interest to the readership. In a word, in his bibliography as in his biography, James Eights proves to be elusive.

31. W.J. Zinsmeister, "Early geological exploration of Seymour Island, Antarctica," p. 2 (also map, Fig. 2, p. 3). It is sad that Eights did not himself tell whether he collected the fossil. Eights seems to have kept certain Antarctic specimens to himself; their fate is unknown. Certain others went as a group to the Albany Institute, from which some presumably gravitated to the State Museum. If the large and clumsy bit of foreign fossil wood ended up in the State Museum, it is problematic whether anyone would have bothered to treasure it, however much its existence would now be celebrated.

32. J.F. Spletstoesser, "James Eights (1798–1882), first geologist and first U.S. scientist in Antarctica," abstract of a paper read in Denver at the 1988 annual meeting of the Geological Society of America.

33. J. Davenport and G.E. Fogg, "The invertebrate collections of the *Erebus* and *Terror*," pp. 325 (Fig. 1), 326.

34. R.K. Headland, *Chronological List of Antarctic*

Expeditions and Related Historical Events, pp. 15, 17 (map), 40 (map), 137 (account of the 1829–1831 sealing voyage), 416 (reference to Eights Station, U.S. Antarctic Program, 1963–64), 424 (Eights Station, etc., 1964–65), 430 (Eights Station closed, 15 November 1965), 581 (map).

35. G.E. Fogg, letter 4 May 1990; G.E. Fogg and David Smith, *The Explorations of Antarctica the Last Unspoiled Continent*, pp. 24–25. I know of no evidence for Fogg's notion that a blasted love affair soured Eights on the world and ended his scientific work.

36. G.E. Fogg, *A History of Antarctic Science*, pp. 45–48, figs. 2.8, 2.9, 50, 61, 89, 180, 281; the references are cited pp. 428–429. I do not think there is good reason to credit Eights alone with "13 cases of specimens" for the Lyceum; whether these really remained with the Lyceum, after their delivery there, is unknown. His initial observations on glacial erratics as indicative of continental origin might better be credited to his 1833 paper, not the derived one of 1845. Fogg seems not entirely well grounded to say that "the scientists" of the Wilkes Expedition were glad to be rid of Reynolds, unless he means the final scientific staff (and even some of them signed a letter defensive of Reynolds). As to why Eights was dropped from the Wilkes Expedition, Fogg claims lack of knowledge, supposing (p. 48) that "perhaps he was put off by the controversy and delay in the starting of the venture" — hardly an apt description of what happened. Nor, of course, did he work on the New York Natural History Survey after, but before, his being tentatively named a member of the Expedition of 1838 (p. 48). Dates of the two papers in Vol. 2 of the *Transactions of the Albany Institute* are muddled — the first-listed (the shorter) was not published until 1852, even though the volume began publication in 1833.

37. Anon., 1992, "Platform award," a picture story, *Altamont Enterprise*, 4 June, p. 10. Marie Creel, Regent of Tawasentha Chapter, New York State Daughters of the American Revolution, presented its conservation award to Michael Krish, Thacher State Park, who designed the platform. In 1933, when the plaque was placed, "a road up from the then-substantial hamlet of Meadowdale gave access it. But the road has fallen into ruin, and the plaque was illegibly high above the trail."

38. Jorge Berguño B., "Las Shetland del sur: el ciclo lobero," p. 13, note 17. While not an item of great interest to this author, he does mention the combined sealing and scientific observation that occurred on the Expedition of 1829–1830. A major aim of the expedition, he claims, was to search for the hypothetical Swain Island. However, geologist James Eights made observations; Watson and Reynolds explored the Gulf of Arauco. It is not clear that of the three investigators Reynolds alone was involved in gathering the story of Mocha Dick, later immortalized by Herman Melville in *Moby Dick*, and in stimulating interest in further exploration that resulted in the Wilkes Expedition.

JAMES EIGHTS AS OTHERS SAW HIM: THE PORTRAITS WITH AN APPENDIX ON EBENEZER EMMONS, JR.

Word pictures of a human being do little to tell you what he really looked like. Almost nobody described James Eights as to general looks, height, complexion, or hair color. Benson J. Lossing, in a letter to the anonymous writer, "West Point," in 1886, described the visit of Eights to the Harper publishing firm in the 1850s. It was thus a memory of a meeting some 30 years before. Eights was "a rather tall, well proportioned man, apparently of middle age." Lossing found him genial and entertaining.¹

For James Eights, we have two watercolor miniatures and a formal oil portrait, made at widely separated times in his life. The miniatures have been longest known, having come into the possession of John Mason Clarke by 1905. Clarke donated them to the Albany Institute in 1915. Both had previously belonged to Ebenezer Emmons, Jr.

The earliest portrait of James Eights (one of the Clarke miniatures) alleges to show him at about the age of 25 — a date of 1823 or 1824 is thus implied. There is nothing about the portrait to cast doubt upon this conclusion. Called a watercolor in the Albany Institute inventory, it was once described by Robert G. Wheeler, director of the Albany Institute, as "little more than a wash drawing." Indeed, it may have been a study for a portrait or, of course, a hasty but competent copy of a portrait. It shows a dapper, rather Byronesque young man, fashionably dressed in a generously laped jacket of the

period, with white neckpiece and lacey shirt-front. His hair, worn rather short, falls in wind-blown curls.²

I have no doubt this painting of the young Eights is more or less correctly dated. It has been ambiguously credited to "Ebenezer Emmons." Nothing can now be made of faded writing on the back of the drawing; it was probably, in any case, an annotation made by John Mason Clarke. I am confident it was not drawn by Emmons, Sr., for I have seen nothing to indicate that he could draw at all. Nor do I believe it to have been done by Ebenezer Emmons, Jr., at a later time and made to show Eights at an earlier period. The younger Emmons could not have done it at the time in question, for he was born in 1822. The young Eights is dressed in precisely the clothing worn at the time, as shown by a surprisingly similar contemporary portrait of Richard Varick DeWitt in the Albany Institute, a watercolor miniature by Henry Inman and dated 1821. Indeed, I strongly suspect this orphan portrait of James Eights was drawn by Henry Inman or his understudy. Eights and DeWitt were promising young Albany worthies, near contemporaries and lifelong friends. Given the means, it would have been natural for both to sit for an Inman portrait.³

The second miniature portrait of Eights alleges to show him in 1840. Information on it is limited to a note on the back: "Dr. James Eights — Painted by Ebenezer Emmons from whom I

received it. — John Mason Clarke." Ebenezer Emmons, Jr., is the only Emmons from whom Clarke could have received anything. I have no argument with this. From the portrait, it is evident that we are looking at James Eights — and that he was some 15 or more years older than in his earlier portrait. From its rather clumsily handled lines, it is also evident that Ebenezer Emmons, Jr., was *not* the painter of the earlier portrait. If indeed this is the work of young Emmons, the briefest comparison of it with his technical drawings will also show that he was a great deal better natural history illustrator than portrait painter. It would be incorrect to infer that Emmons *gave* the portrait to Clarke; Clarke was too much the gentleman to say so but he probably bought them from the ever-impecunious Emmons, as a financial favor to a man in need. These miniatures of Eights were in the possession of Clarke by at least March 1905. Being then under the impression that Eights had "passed off the scene about 1850," Clarke thought this second portrait showed Eights "not long before his death when his countenance had assumed a singularly rubicund aspect."⁴

The third likeness of James Eights is a formal portrait in oil by the eminent but now neglected Albany artist Asa Weston Twitchell (1820–1904). It was first made known publicly in 1944 but it was found in a Saratoga Springs second-hand store in 1941 and was then purchased by the New York State Museum. Its first exhibition, as far as I am aware, was at the Albany Institute of History and Art in 1991–1992. It is an oil on canvas with dimensions of 30 by 25 inches (in a frame 34-1/4 by 29-1/4 inches). Painted in 1870, it is a frontal view, waist up. The sitter has a serious expression and wears wire-rimmed glasses. There is considerable crackling in the facial area. A curator describes it as showing an almost bald man with a ruddy complexion.⁵

Considering the man's life-dates, it is remarkable that no photographic portrait of Eights has come to light. Such a picture may be hinted at in a letter quoted for me by Eights family member Mildred C. Sharpe. She cited a letter from Henry Sage Dermott, history curator of the First Presbyterian Church in Albany, written 5 May 1915. Dermott had obviously been alerted

to the Eights family by John Mason Clarke, then researching his biography of James Eights. In his letter Dermott "tells of having been given a photograph from a friend's attic, said to be a likeness of Dr. Jonathan Eights. Dermott and the State Geologist [that is, Clarke] thought it was a likeness of James Eights." The fate of such a photograph is unknown. It appears likely that Clarke did not acquire it, for he would have given it to the Albany Institute.⁶

APPENDIX: A NOTE ON EBENEZER EMMONS, JR.

Ebenezer Emmons, Jr., needs to be considered briefly here, even though this is a biography of James Eights. Despite disparities in their ages, they could not have been unaware of each other. Eights was a devoted friend of the elder Emmons and the younger Emmons must often have seen him in the Emmons Albany home. Furthermore, Eights's work in North Carolina surely came to him primarily through the offices of the elder Emmons. Again, when young Emmons returned to Albany after his father's death (he had been associated with his father in the North Carolina work), it is likely that Eights and the younger man renewed their acquaintance. Albany's small-town culture cannot but have drawn together two such accomplished former acquaintances, naturalists and artists.⁷

Ebenezer Emmons, Jr., was born in 1822 and died 16 January 1907 at the age of 84 years, 9 months, and 24 days. Despite his long association on the fringes of officialdom in Albany, early as an assistant to his father in work with the Geological Survey, later with Emmons's Agricultural Survey of the State of New York, and still later as sometime associate in the Geological Survey in the tenure of James Hall, particularly as one of Hall's finest illustrators, little official recognition comes readily to hand. In Geological Survey records, he is listed as "Geological Assistant," 1837–1841, "Assistant Geologist," 1836–1841, and "Draftsman," 1893–1894? This does not cover the Agricultural Survey (where he may somehow have been paid directly by his father) and the last date is particu-

larly misleading, for he was associated with James Hall as illustrator, whether as an official state employee or not, for a much longer period.⁸

Despite his certified qualifications as an illustrator, subject to ready verification, the junior Emmons has fared poorly in standard works on American artists. Harry Twyford Peters, in *America on Stone*, gave him merely a line, even abbreviating his forename and not distinguishing him from his father: "An artist who did views and technical illustrations for R.H. Pease, Albany." What the views were is not said. Despite efforts by George C. Groce to find out more, the entry in Croce and David H. Wallace's *The New-York Historical Society's Dictionary of Artists in America, 1564-1860*, did little better. It spelled his first name but listed him merely as: "One of several artists who did views and technical illustrations for R.H. Pease, engraver and lithographer of Albany (N.Y.), c. 1848-54." Groce's inability to find whether he or his father painted the two portraits of James Eights at the Albany Institute was noted. William Young and others, in *A Dictionary of American Artists*, added nothing to the record.⁹

Eb Emmons (it seems he was so called by James Hall) lived a somewhat less obscure official life than all this implies, although information is sketchy and scattered and mistakes abound. Confusions are added to uncertainties, too, since the Emmons family seems to have traveled easily between Albany and North Carolina during the elder Emmons's tenure as head of the North Carolina Geological Survey, beginning in 1852. Eb Emmons first appeared at his own residence in Albany in 1848, according to the Albany Directory. Possibly he married about that time, although the slender evidence I have for this is that his wife Helena died at the age of 25 in May 1855, presumably in Albany. (The purchase of a burying ground at the Albany Rural Cemetery by Eb Emmons and Chauncey Watson was probably triggered by that tragedy; the cemetery deed is dated 6 June 1855.) He may have remarried, for the Emmons family history gives his wife's name as Olive Adams; however, no such person was buried in the Emmons plot at Albany Rural Cemetery, while Eb and Helena are there.¹⁰

That Eb Emmons assisted his father in the New York surveys has been noted. Max Meisel described him as assisting in the Second Geological District (final report, 1842) and also in the Agricultural Survey (final report, 1846-1854, although it seems likely that Emmons has little to do with this after 1851). Ebenezer Emmons, Sr., wrote: "In the field, I have been assisted by my son, a part of his expenses being defrayed by myself." A great many of the plates in the first three volumes of the Agricultural Survey are attributed to Emmons, meaning the younger man.¹¹

As for the eventful years of the North Carolina Survey, some notice has been given above and in earlier chapters, in connection with Eights's work in that state. As with most aspects of Eb Emmons's life, mysteries abound. George Perkins Merrill merely stated that Ebenezer Emmons was assisted by his son, presumably from the start of the survey in 1852. Work ceased in 1860, because of the Civil War. Emmons continued as titular head until his death 1 October 1863. How long Eb Emmons remained after his father's death is not stated. Max Meisel was more specific, basing his statements upon official financial records. Although the elder Emmons was appointed 8 October 1851, work did not start until January 1852. Meisel agreed that the war closed the survey in 1860. "Dr. E. Emmons, Jr., was appointed assistant geologist" ("Doctor" is a title Eb Emmons did not have). Meisel wrote further: "Emmons' assistant during the life of the Survey was his son Ebenezer, Jr., who served until 1864..."; "the Emmons survey officially terminated upon the resignation of E. Emmons, Jr., April 1, 1864." The Emmons family history wrote that Ebenezer Emmons (Sr.) "was not permitted to return to the northern states" after the outbreak of war, a statement that I am not sure can be substantiated. Others inclined to think that he remained out of loyalty, in the hope that work could again begin. The family genealogist also claimed that Eb Emmons worked there officially until 1865, although no work was being done. The date is inconsistent with Meisel's information and, as with all accounts, we do not know when Eb Emmons returned to Albany.¹²

Jules Marcou, in his biography of Ebenezer Emmons, Sr., included some useful dates, although he missed a chance to clarify many now puzzling matters. He stated that, just as Emmons's views on the Taconic System were being substantiated, "Dr. Emmons disappeared out of sight and reach in the great civil war. Having been state geologist of North Carolina since 1851, he left his house at Albany on the 2nd of September, 1860, never to return." Without indicating details, he further noted that Emmons's wife "succeeded in reaching him in 1863." Marcou hoped that she had taken with her copies of favorable papers that he and others had produced but had not been able to send to Emmons. This presumably means that Mrs Emmons did not go with her husband in 1860 and only went when he was in his final illness. Specific dates are unfortunately not given. Emmons had written to Marcou that "'The political conditions under which we are living in the South is quite oppressive. I cannot but look with great fear upon the results of agitation, and it unfits me for work.'" "Ill health soon confined Dr. Emmons to his plantation, Brunswick county, where he died...surrounded by his wife and son. His remains were brought home and interred in the Albany Rural Cemetery. All his valuable papers...left in North Carolina...were lost and are probably destroyed."¹³

Let us now return to Eb Emmons and his final Albany years, significant, if we believe some commentators, ill-starred, if we accept other accounts — and, in any event, ill-documented. First, two views, not so much differing in their evaluations as simply ignoring each other.

John Mason Clarke wrote: "Ebenezer Emmons, Jr., was the gifted son of Doctor Emmons, who had all the elements of a versatile genius. He was a very superior artist, the illustrator for many of the volumes of the Natural History and he was not without geological experience. During his entire life he was more or less directly concerned with the work of the Natural History Survey and when I joined it [1886] he was assigned to me as draftsman. Some of his most faithful and accurate work was done when he was past seventy. He died in 1908 at the age

of eighty-seven years." This is a tactful portrait presented by a gentleman, painted with a broad brush; the date of death is incorrect, as is the age at death.¹⁴

The other view also paints with a wide brush, without any effort to evaluate achievements — it no doubt incorporated in-house gossip that had survived from distant days, for no documentation was offered. Donald W. Fisher, dealing only tangentially with the junior Emmons, in an appreciative account of the elder Emmons, wrote: "Ironically, his son, with whom he had been very close when his son was his field assistant, despite his chronic drunkenness and money-borrowing, worked for over 40 years with the very person — James Hall — who was most instrumental in destroying his father's career! Ebenezer Emmons, Jr. died in Albany in 1912."¹⁵

The earliest James Hall–Ebenezer Emmons interaction after the Civil War concerned not Eb Emmons but his father and dates to December 1870: Mrs Ebenezer Emmons wrote an acknowledgment that has survived: "Received Albany, Dec. 30 1870 of Prof. James Hall, Four Hundred Dollars, being in full for the collection of minerals left by my late Husband Ebenezer Emmons, — both these now delivered and whatever may subsequently be recovered as belonging to said collection. / \$400.— / Mrs. Maria A. Emmons."¹⁶

As already stated, the first evidence that Eb Emmons was working for Hall, perhaps in an unofficial way with little formal bookkeeping involved, was with Volume 5, part 2, *Gasteropoda, Pteropoda, and Cephalopoda of the Palaeontology of New York* (plates all dated 1879) (note that this was published earlier than volumes listed below). It was a work illustrated by a novel method of printing called *Albertyping*. A few of the 113 plates are not attributed as to artist; Emmons is credited with drawing Plates 26, 77-B, 104, 110, 112, 113.¹⁷

In the 1884 volume of the *Palaeontology*, volume 5, part 1, volume 1, on the *Lamelli-branchiata*, part I, early plates, some of them begun as early as 1873, were by a variety of artists other than Emmons. With Plate 81, with Chas. Van Benthuyssen & Sons, Lith., Albany, doing most of the printing, we find credit given

to "E. Emmons, del." Similar information is found on plates 82, 85 (85 alone has the added notation "Ph. Ast, lith."), 88, 89, 91, 92. When these were done is not clear. (Clearly, the volumes over-lapped at this time.)

In volume 5 of the *Palaentology*, part 1, volume 2 (1885), (Lamellibranchiata, II), acknowledgment (page x) had it that "six plates of recent additions have been drawn by Mr. E. Emmons." Plates signed by Emmons are: 35, 42, 93, 94, 96. (It is not clear which is the sixth Emmons plate.)

In the *Palaentology* volume 6, 1887, Corals and Bryozoa, there were 67 plates (with some confusion in numbering, for the last one is labeled 66), all plates were by artists other than Emmons, and were probably done in the 1870s.

In volume 7, 1888, "Trilobites and other Crustacea," Hall was assisted by John Mason Clarke. There were 36 plates, supplemented by 18 plates (114-229) that belonged to volume 5, part 2. Of the 36 plates, 27 are by Emmons and he did 15 of the supplemental plates. On page x, Hall wrote: "All the later drawings have been made by Mr. E. Emmons."

Hall and Clarke's *Palaentology*, volume 8, part 1, "Brachiopoda," appeared in 1892. This was an account of Brachiopoda supplemental to what appeared in volume 4 that appeared in 1867; none of the 1867 plates was by Emmons. Of 42 plates in the 1892 part, numbered erratically, 16 are by Emmons. A note by Hall, page xvi, indicates some interruption in Emmons's service had occurred: "the drawing for the later plates was begun by Mr. E. Emmons, whose services were subsequently supplemented by the skillful and beautiful work of Mr. George B. Simpson." Volume 8, part 2, was published in 1894; I cannot supply an analysis of its plates.¹⁸

It is difficult to untangle Emmons's role in all this. That Emmons had been working for some years for Hall is clear. There is a photograph in New York State Museum archives showing Emmons and the newly hired John Mason Clarke with Hall in 1886. Hall seems, in all these early years, to have paid Emmons from a fund for which he was not required to make a detailed account. Emmons was essentially a hired man. Some of the stress of that relationship can be appreciated from a handwritten letter from

Clarke (already keeping shop for the elderly and often ailing Hall) dated 2 January 1889: "I regret to hear that you are feeling unwell this morning....I wished to see you on Mr. Emmon's [sic] behalf, who wrote me a few days ago to call and see him. I found him suffering from a severe attack of rheumatic fever which has kept him confined to his house and bed for some time. He desired me to see you and say that he was behind in his rent for two months, to the amount of \$32 — and had promised his landlord to pay on Jan 1st but had no money to meet his indebtedness with. He is very anxious to keep his word as, he says, his new lord is inclined to be harsh and inconsiderate, and he hopes you will be willing to loan him on note in due bill this small sum. I saw for myself that they were in need of money in the family." One would gather from Clarke's use of the word "they" that Emmons had some sort of family, whether wife or children is not clear.¹⁹

In 1887, Ebenezer Emmons, Jr., contributed a specimen of Alcyonaria (horn coral) from the West Indies to the State Museum. By the year 1889–1890, Hall was reporting where state money had gone; among items listed, for drawing, E. Emmons, a total of \$265.75; this amount appears also under costs of "Publication." This amount also appears under bills paid 1890–1891, except that the one figure becomes \$60 instead of \$54.75. Records seem sporadic (and repetitive, since some are estimates, some records of disbursement, some accounts of payment) but there is a note: "Simpson earns \$75 per month / Emmons 50" — a year's total of \$600 for Emmons. In the same year, Philip Ast, lithographer, got \$1500. The cost of illustrating volume 8 of the *Palaentology* in two years was \$4,320. A threatening note on 14 November (apparently, 1890): "Dewey [Secretary of the Board of Regents, Melvil Dewey] agrees to pay, Ast, Simpson and Emmons out of the \$990.00 balance of the pal. [Palaentology] appropriations. While this lasts work can be done on Part II, Vol. VIII."²⁰

For the first time, Eb Emmons was listed as "Draftsman" among State Museum personnel in the report for 1893. This jibes, not so much with reality (he had been draftsman, in some part, for

a good many years), as with official records, for R.H. Fakundiny, has Emmons in the official hire of the Museum "1893-94?" — with the question mark indicating an absence of records. What is surprising is that this date comes after the episode already cited where Emmons was confined to his bed and in need of cash — but, obviously, already in the hire of Hall. In what appears to be 1892, on 7 January and 5 February (the precise chronology of the 5 Feb letter is uncertain), Emmons wrote to Clarke, asking that he come to see him; and in the second letter, he reported that he was confined to his house and would like Clarke to visit him again, but was hesitant to trespass upon his time. He was anxious for news and company, concerned about the publication of the *Palaeontology*. He recovered and was able to return to some sort of employment with Hall and Clarke. Clarke noted, in the report for 1893: "Mr. Ebenezer Emmons was engaged early in the year to undertake the sorting and distribution of the extensive collection of palaeozoic fossils in the State hall."²¹

By 1895, roadblocks were thrown across the track of Ebenezer Emmons. The record is sketchy, perhaps accounting for the question mark in Fakundiny's account. In the 49th Annual Report of the State Museum, transmitted to the Legislature 11 February 1896, in Hall's report of the State Geologist and Paleontologist for 1895, he reported: "In order that the Regents might have at their disposal the means of furnishing academies and schools with collections representing the rocks and fossils of New York series of formation I continued the services of Mr Ebenezer Emmons in assorting the large stores of fossils originally collected for the New York Paleontology, for the use of the schools of the State. He continued his services in this direction at the expense of the appropriations for the geological department until I received the following notice from your office:

"'REGENTS' OFFICE, ALBANY, N.Y., 4 Jan 1895 / At a legal meeting of the regents of the University of the State of New York, held at their office in the Capitol in Albany, December 12 1894, the following action was taken: [Extracts]...Duplicates for schools. It was found that the State Geologist assigned to the labor

connected with gifts an amount of time and assistance greatly in excess of what similar collections could be bought for from dealers. / Voted, That no farther requests for specimens from the duplicate collection can be granted till there is an appropriation for the necessary expenses of selecting, labeling and packing....MELVIL DEWEY / Secretary [to the Board of Regents].'

"Under these conditions I felt that I could no longer be justified in going on with this work, and so notified Mr Emmons.

"However there was certain work necessary, in the opening of boxes and the selection of specimens to fill out the geological series in our drawers that I continued Mr. Emmons' services until the first of March.

"The attention of your board is directed to the fact that these school collections are still uncompleted and that the services of a good man, for a few months only, would put them all in such condition that you could respond to requests from schools for sets of the representative fossils of our geological formations."

Subsequently, Dewey forwarded the wishes of the regents that three schools be allowed to make collections from the Museum's duplicates, "the selection to be made subject to the approval of the state geologist and all the expenses to be borne by the institutions." Results might have been predicted: two of three institutions opted not to pay their own way to Albany to select specimens, while the third sent a rapacious individual who walked away with "a large and fine series of fossils, such as the institution has seldom given away before, and could not part with again without incurring material loss."²²

Little else has been found in New York State Archives on Ebenezer Emmons, Jr. There is an undated note from him to Clarke thanking the latter for a "reproduction" [probably a newspaper clipping] of the "Tablet," no doubt the memorial tablet placed on the Emmons house, at Clarke's behest, by the American Association for the Advancement of Science in 1901.²³

Aside from the obituary notice and the various somewhat oblique notices of his life that have since appeared, that ends the story of Ebenezer Emmons, Jr.

NOTES

1. "West Point," in a letter published after Lossing's death, quoting Lossing's letter to him, said to have been dated 12 Apr 1886. More details on the encounter may be found in the chapter on Eights's Albany street scenes.

2. The early miniature is AI Accession Number X1940.826.1. It has an image size of 4-1/2 by 3-1/2 inches, a frame size of 8-1/4 by 7-1/4 inches. It was a gift of John Mason Clarke, 15 May 1915. According to a note in Institute records, it "had been given to Dr. Clarke by Ebenezer Emmons (Philadelphia artist)." Its attribution today to "Ebenezer Emmons" as painter appears to be based on a suggestion in Institute files by someone unable to distinguish between father and son (Ebenezer, Sr., was no artist and could not have given anything to Clarke), but that was pure guesswork and, in its description of Emmons as a "Philadelphia artist," not even a well-informed guess. The Wheeler letter was written 22 Oct 1954, in reply to a query by George C. Groce, biographer of American artists, who wanted to know if the AI portraits were by Emmons Senior or Junior.

3. I have an uneasy feeling that I have seen the early portrait of James Eights listed as a self-portrait. This may go back to a note in AI files: an early researcher who scrambled matters and listed it as a portrait of Ebenezer Emmons by James Eights! The Inman portrait of R.V. DeWitt is AI 1924.17. It was painted by the brilliant young Henry Inman (1801-1846). Inman finished his seven-year apprenticeship in the early 1820s (sources vary from 1821 to 1823) and began work on his own, quickly becoming a very successful portraitist. Since he portrayed such New York State politicians as Martin Van Buren, William H. Seward, and DeWitt Clinton, perhaps he spent some time in Albany in this period. He and his teacher, John W. Jarvis, also traveled widely during his apprenticeship. Details of Inman's life seem not particularly full but see William Howe Downes's essay in *Dictionary of American Biography* for basic information. See also William Dunlap's *History of the Rise and Progress of the Arts of Design*, 1: 344, 3: 135-138, and Charles Edward Lester, *The Artists of America*, pp. 33-64. According to Lester, Inman did not like the emphasis upon miniatures that he was forced to undertake and early gave that work up to an apprentice of his own, so portraits such as these probably typify his early years; in addition, Lester points out that he removed from his early independent studio on Vesey Street in New York City in 1825 to the vicinity of Philadelphia. A date early in the decade for Albany portraits would be probable.

4. The 1840 portrait is AI X1940.826.2. Its frame measures 6-1/2 by 6-1/2 inches (window, 3-7/8 by 3-3/8 inches). It is a framed watercolor on paper under glass. It was given to AI by J.M. Clarke 15 May 1915. As to date of Clarke's acquisition of the miniatures, see Clarke to L.J. Cole, 20 Mar 1905, NY State Archives, BO 561.Box 11.

5. Twitchell's portrait of Eights is Acc. No. 41.5.2, New York State Museum, Division of Research and Collections. It was discovered in the second-hand store of Josephine G. Sterns, Saratoga Springs, New York, 2 Nov 1941. I am indebted to Ronald J. Burch for information on the painting — and to Kenneth Dean for thoughtfully guiding me to Burch's office. See C.C. Adams, "106th annual report of the New York State Museum," 1944, p. 26, Fig. 11 (p. 33); for its exhibition, see Wesley G. Balla, "James Eights and

the Practical Application of Knowledge," 26 Oct 1991, p. [23]. The Twitchell portrait was reproduced in C.R. Roseberry's "Antarctic area named for obscure Albanian" (1954), with no comment on date done, painter, or repository. Information on Asa Twitchell is, unfortunately, scattered. He richly deserves better press. Frederic Fairchild Sherman noted, almost anonymously, in *Art in America*, 23: 82, 1938, that Twitchell has been "unaccountably overlooked by all recent compilers of dictionaries of artists. He painted many of the governors of New York State and an excellent half-length of Abraham Lincoln. He was an honorary member of the National Academy." An account of Twitchell appears in Cuyler Reynolds, *Albany Chronicles* for 1904, p. 780, for 26 April, with the reproduction of a photographic portrait opposite p. 778: "...born Swazey, N.H., on Jan. 1, 1820, beginning painting of portraits in 1839, coming to this city in 1843, his studio over Annesley & Co.'s art store at No. 57 No. Pearl street, and in the country in his home to the east of the road to Slingerlands, at Hurstville, near the Normanskill creek, though not bordering." He painted Judge Rufus W. Peckham the elder (who was lost at sea), T. Romeyn Beck, Martin L. Deyo, and other subjects. See also Reynolds, pages 778-779. His portrait of Governor DeWitt Clinton (*Conservationist*, Nov.-Dec. 1977, page [11]), was done after Clinton's death. Notices of Twitchell in modern times are few. He was noted occasionally in Albany newspapers; among these items: (1) *Argus*, Anon., 13 May 1846, "one of Albany's best and most promising artists has several of his excellent portraits on exhibition at the National Academy, New-York"; one critic feeling that "he should allow a little light to come into his room from some other place, or to have a reflected light upon his litters, which will cause his shadow to be less cold and heavy." (2) *Argus*, Anon., 21 Dec 1846, along with others, Twitchell signed a testimonial recommending Rembrandt Peale's "The Court of Death." (3) *Argus*, Anon., 10 Feb 1848, an original portrait by Twitchell, "of this city," donated to Albany Gallery of the Fine Arts by Dr J.H. Armsby — presumably a portrait of Armsby. (4) *Argus*, Anon., 6 Apr 1848, Twitchell was commissioned by parishioners to paint a portrait of Pastor Duncan Kennedy of the First Dutch Reformed Church. He was never listed in *Who's Who*. Ralph Emerson Twitchell, *Genealogy of the Twitchell Family*, records his history on pp. 164, 290; he married Nancy Simonds of Schahticoke and they had nine children; no portrait of our Twitchell is reproduced in this family account. He got short shrift in George C. Groce and D.H. Wallace's *The New-York Historical Society's Dictionary of Artists*, p. 640. Allison P. Bennett, *The People's Choice*, p. 122, reproduced his self-portrait, an oil on canvas of generous proportions, but dismissed him airily: He was an artist, "the demand for whose services may be apprehended by his two greatest claims to fame: a self-portrait and a sort of club he seems to have run for other busy artists" ("busy" obviously a snide word). Curatorial files of the Albany Institute are rich in Twitchell-related materials and the Institute has notable examples of his work.

6. Mildred C. Sharpe, letter 20 Sep 1988. No trace of such a photograph has turned up at the Albany Institute (W.G. Balla, 8 Aug 1996). I have not been able to find any papers left by Henry Sage Dermott.

7. In his negotiations for the position of head of the North Carolina Geological Survey, Ebenezer Emmons, Sr.,

asked that he be allowed two assistants, one of whom he wished to be his son; he had been with him in most of his New York work and his father considered him "the best draughtsman I have ever known." See Ebenezer Emmons to J.G. Bynum, 12 Nov 1850.

8. Emmons's age is quoted from interment information at Albany Rural Cemetery, where his was burial No. 10 in Lot 46, Section 16. The lot was purchased 6 Jun 1855 by Ebenezer Emmons, Jr., and Chauncey Watson (husband of Emmons's younger sister Mary), according to the ARC. John Mason Clarke, in *James Hall of Albany*, p. 101, footnote 3, had him dying in 1908 at the age of 87, both figures being incorrect. Information at ARC is reinforced by an obituary notice in the *Albany Times Union*, Anon., Thursday, 17 Jan 1907, where, under "The Tomb" (as opposed to entries under "The Cradle" and "The Altar"), we have: "EMMONS — At rest, Wednesday, January 16, 1907. Ebenezer Emmons in the 85th year of his age. Funeral services private at his late residence No. 15 Western avenue, on Friday afternoon at 2 o'clock." Dates of official connections with the Geological Survey are from Robert H. Fakundiny, "The New York State Museum: Child of the Geological Survey that grew to be its guardian," in a list, "Permanent professional professions with the New York State Geological Survey," provided by L.V. Rickard.

9. H.T. Peters, *America on Stone*, p. 171; G.C. Groce and D.H. Wallace, *The New-York Historical Society's Dictionary*, p. 212; W. Young, et al., *A Dictionary of American Artists*, p. 155. These sources do not provide life-dates for the younger Emmons. In this respect, they echo the absence of information in other printed sources, including E.N. Emmons's *The Emmons Family Genealogy*, p. 46, where Ebenezer Emmons, Jr., and his sisters Amanda (older) and Mary (younger) are listed, all without life dates and with no information that any of them ever had children.

10. For the familiar form of his name, see J.M. Clarke, *James Hall of Albany*, pp. 315-316, in "the story of the fatal \$400" which Hall borrowed from the elder Emmons back in Hall's hard-pressed Rensselaer School days and never got around to repaying. Information on burial is from Albany Rural Cemetery records; for the matter of a wife other than Helena, see E.N. Emmons, *The Emmons Family Genealogy*, p. 46.

11. Max Meisel, *Bibliography of American Natural History*, 2: 607, 608, 616-617. E. Emmons, Sr., *Agriculture of New-York*, 1, 1846, page vii. Some text cuts are signed "Emmons, del," and of seven plates, all of them scenic views, three are similarly signed, three are unattributed and may be his; two are credited to two additional artists. In none of these is the young man identified by the addition of "Jr." to the name Emmons. In volume 2, 1849, several works are credited to "E. Emmons, Jr." Several of these are in color. Some 17 plates are involved here: all of them wood sections and various agricultural plants. This volume also has some 14 plates of graphs showing weather observations for the year 1849; they are signed "Drawn by E. Emmons." Since mere graphs, it is conceivable they are the work of the older man. In volume 3, 1851, there is no information on who prepared the many simple outline woodcuts of fruit sections and profiles in the text; there are no plates.

12. G.P. Merrill, *Contributions to a History of American State Geological and Natural History Surveys*, p. 298. Max

Meisel, *Bibliography of American Natural History*, 2: 425, 426. Exactly what work the younger Emmons did in North Carolina requires documentation. His father reported in *American Geology*, 1855, p. 163, that his son had "discovered pottery and implements supposed to be of Indian manufacture...in the auriferous quartz grit seven feet below the surface" in Burke County. Jules Marcou, in his biography of Emmons, Sr., p. 15, wrote that the younger Emmons made all the drawings in that 1855 work of his father's, all "well executed, being accurate and far superior to all the figures of other fossil plants until then." See also E.N. Emmons, *The Emmons Family Genealogy*, page 46.

13. Jules Marcou, "Biographical notice of Ebenezer Emmons," p. 9, 14, 15. It is unfortunate that Marcou gave no indication how Mrs. Emmons reached her husband in 1863, nor precisely when and how his body was returned to Albany. He was buried in Albany Rural Cemetery; ARC records also fail to give date of interment. Marcou did not state when (or how) either Mrs. Emmons or the junior Emmons returned.

14. J.M. Clarke, *James Hall of Albany*, p. 101, f.n. 3.

15. D.W. Fisher, "Emmons, Hall, Mather, and Vanuxem," p. 37. The date of death is incorrect. Since Hall died in 1898, for young Emmons to have worked for him "over 40 years," the association would have had to begin prior to 1858. I cannot find any firm evidence that Eb Emmons worked for Hall before he began illustrations for Hall's volume V of the *Palaeontology*, that appeared in 1884. Perhaps a date of 1880 is a safe guess.

16. New York State Archives, B0561-78A, Box 2, folder 1858-1870. Hall lost no time in crowing over his acquisition (Al Minutes, Al Archives A11857. B4.1.1 F2, etc.): 3 Jan 1871, at Albany Institute, James Hall displayed "Crystals from the remarkable collection made by the late Dr. Ebenezer Emmons." There is a long account, pp. 505-508, with particular attention to "calcareous spar (calcite) from the lead mine of Rossie, in St Lawrence County, and were collected chiefly during the years 1836, 1837 and 1838, — the mine having been opened in 1836." The collection included more than 1000 specimens. Hall had been anxious to acquire it for the State Cabinet and, when Mrs Emmons indicated an interest in selling it, Albany Institute member Erastus Corning bought it for the state collection. It is perhaps unfair to suggest that this was Hall's way of repaying Emmons that fabled \$400 that he borrowed back in the days of his impecunious student days at the Rensselaer School! If so, he cheated scandalously on interest due on it, if not in other ways.

17. For a discussion of the Albertype process, see Ann Shelby Blum, "'A better style of art,'" p. 81; some references to Emmons's drawings also appear in Blum's account; she referred especially, p. 84, to his later work, where "he rendered the fossils to emphasize their monumental sculptural qualities." There is a good account of Hall's project up to this point in the *Palaeontology*, volume 5(II), pp. vi-x.

18. James Hall felt some obligation to fine-tune credit for the work of artists for volume 8, for some of the plates for part 1 were composite figures produced by different artists. In a complex and confusing analysis of credits for plates in what Hall called plates I through IV, Emmons was credited with original drawings of some 284 separate figures (Report of the State Geologist, "Original drawings for the Palaeontology of New York, volume VIII [1]," pp. 49-51.

19. In regard to the photograph, see William A. Oliver, Jr., "James Hall and fossil corals," p. 99. Clarke's letter is New York State Archives, BO 579 box 2, folder 3. I am unable to confirm whether Emmons was married at the time; recall that the Emmons genealogy reported him to have married a woman who is not buried with him and his first wife in the Albany Rural Cemetery. There are, however, two Emmons men buried there who *may* have been his sons. (He was the only son in his family, so this appears a tenable proposition.) They are Edward J. Emmons, died 1912 aged 50 years and born about 1852; and Grant J. Emmons, died 1942 aged 74 and born 1867 or 1868. If Grant J. was his son, his mother was, of course, Eb Emmons's second wife.

20. For the coral, Anon., 1887 (1888), p. [29]. General status, New York State Archives, Assistant Director's Correspondence, 1890-1892, Box 1, 1890-92 folder.

21. Anon., 1893 (1894), pp. [8], 17. R.H. Fakundiny, on geological personnel, 1987, p. 127.

22. Hall, Report of the State Museum, 49th Annual Report of the Board of Regents, 1895 (1897), 1: [13]-14. Hall pointed out that the regents made no provision for *additions* to the collection and doubly doubted "the wisdom of permitting anyone to come into the stores of this department and help himself to what he wants."

23. New York State Archives, A4208-87, Box 3, in a folder entitled "E. Emmons." It contains two of Eb Emmons's letters, cited above, this note and a couple of items relating more to Ebenezer Emmons, Sr., than to his son (one is material on Eb Emmons from his father's *American Geology* of 1855, obviously presented by Eb Emmons to Hall to document his abilities at the time he secured his job in Albany). The other is an autograph of "Ebenezer Emmons," clipped from a letter in a note addressed to Jacob Van De Loo, 24 Dec 1897 (probably a signature of his father supplied by Eb Emmons).

JAMES EIGHTS: PUBLISHED AND MANUSCRIPT WORKS

This list is an essay at a complete list of the works of James Eights, published and manuscript. My debt to previous bibliographers, particularly Char Miller, will be evident. Some elements, however, are new. I am also unable to accept all the titles listed by Miller, notably a series of articles published in *The Zodiac* in regard to a European tour; these were misattributed by a modern reprinter of that periodical and were certainly not written by Eights. As hinted in the text, some articles signed only "J.E." in the *Country Gentleman* seem to me either not his or his only by unacknowledged borrowing. Perhaps he identified useful information for the editor and was rewarded by having his initials attached to the resulting contribution.

Letters are entered by dates, with indication of recipient; general subject may be noted, unless this is explained further in an annotation. If the letter has been published, that fact is noted, reference being to works cited in the accompanying bibliography of works on James Eights. In the case of publications, exact titles are given, although excessively long subtitles are sometimes abbreviated. If articles have no title, as in short editorial notices, one is supplied, sometimes within parentheses. Articles unambiguously signed ("James Eights," "Jas. Eights") are not queried; those signed "J.E." or "E." are so noted.

1823. Letter to Amos Eaton, with regard to delivery of geological drawing, 22 Jan. Graz Collection, Historical Society of Pennsylvania. Quoted by E.M. McAllister, 1941: 536.
1823. (Maps and some illustrations in Amos Eaton's Geological and Agricultural Survey of the...Erie Canal.) He evidently drew and colored the geological section and contributed views of Little Falls, Rochester and the entrance to the Canal at Albany.
- 1824? (no secure date). 1st Catalogue of Minerals belonging to the Albany Lyceum. By R.V. DeWitt, James Eights, M.H. Webster, curators. Albany Institute of History and Art (AIHA), McKinney Library. Ms ledger of 389 regular entries, 32 being items 'on deposit' from James Eights.
1826. Letter by George W. Clinton and JE to Amos Eaton, 6 Jul; on geology of 'Helderbergh Mountain.' New York State Library; I have used a transcription by Char Miller.
1825. Reprinting of the Canal views, geological section, etc., in William Leete Stone's memoir of the Erie Canal.
1828. Reprinting of the Canal views, etc., in frontispiece of A. Eaton's geological memoir, *American Journal of Science*, vol. 14.
1828. Letter to Samuel L. Southard, Secretary of the Navy, 18 October; application for position with proposed exploring expedition. National Archives Record Group 45, Naval Records Collection of the Office of Naval Records & Library; Entry 21, Secretary of the Navy Miscellaneous Letters Received, 1828.

1829. (Specimens of a singular variety of quartz crystal from Palatine, New York, presented by Dr. Eights of Albany.) *American Journal of Science* (Proceedings of the Lyceum of Natural History of New-York, Jan.), 16(2): 355. (Not really a paper by Eights nor is he listed in table of contents as an author.)
1829. A table of thermometrical observations made in the South Atlantic Ocean on board the Exp Brig 'Annawan' Capt'n N.B. Palmer, December, 1829. AIHA, McKinney Library. 2 sheets. Includes calculations of location and wind directions at two-hour intervals; thermometers lost on 25 Dec. 1831. Habits of the ruffed grouse, or pheasant. (*Tetrao umbellus*.). *The Cabinet of Natural History and American Rural Sports*, 1: 260.
- 1832 (ghost). Talk about an animal found in the Antatric (sic). Entry, MS. index of AI papers, AIHA. Said to be with "Institute Reports, etc., combined with Correspondence," but not be located July 1988. Perhaps a preliminary version of his paper communicated and published in 1833.
1833. Manuscript of "Description of a new crustaceous animal found on the coast of Patagonia...." AIHA, Library, DE 563. Read June, communicated for publication 10 July 1833.
1833. Description of a new crustaceous animal found on the shores of the South Shetland Islands, with remarks on their natural history. *Transactions*, Albany Institute, vol. 2, art. 4, pp. 53-69. 2 plates. (On his new crustacean, *Brougniartia* [now *Serolis*] *trilobitoides*; certain parts were reprinted as listed below; there was also a notice of the expedition in P.L.A. Cordier, 1837 and several writers cited his 'living trilobite'; Audouin and Milne Edwards, 1841, p. 8, f.n. 2, gave publication date as October 1833.)
1834. (On natural history of the South Shetland Islands.) *New York Merchantile Advertiser and New-York Advocate*, late Apr or very early May. Source of reprint used by *Niles' Weekly Register* (next item). (Not seen.)
1834. The South Exploring Expedition. From *The Merchantile Advertiser and Advocate*. Extract from the report of Dr. James Eights, naturalist to the late American exploring expedition of brigs 'Seraph' and 'Annawan.' *Niles' Register*, ser. 4, 10(10) whole vol. 46, no. 1180, pp. 167-168, 3 May. (A reprinting of most of the natural history material from his paper on *Brougniartia* of 1833.)
1834. From JE to Dr. Amos Binney, Boston Society of Natural History, 9 Aug. Used by permission, Museum of Comparative Zoology Archives, Harvard University. Quoted by W.T. Calman, 1937: 181.
1835. Bulletin scientifique. Zoologie. Sur le *Brougniartia trilobitoides*, nouveau crustacé de l'Amérique meridionale. Transmitted by M. D'Orbigny. *L'Institut, Journal Général des [Académies et] Sociétés et Travaux Scientifiques de la France et de l'Étranger*, vol. 3, no. 105, 13 May, pp. 158-160. (This reprinted description of the new species only, without illustrations.)
1835. Description of a new animal belonging to the Arachnides of Latreille; discovered in the sea along the shores of the New South Shetland Islands. Boston Society of Natural History *Journal*, vol. 1, no. 2, art. 11, pp. 203-206, 1 pl. (His famous ten-legged pycnogonid, *Decolopoda australis*; the date of 1837 sometimes seen results from citing title page of whole volume.)
1835. Naturalist's every day book. June, 1835. *The Zodiac*, 1(1): 4-8, Jul. (Unsigned but identified as by James Eights in contemporary index furnished for volume 1.)
1835. The naturalist's every day book. July, 1835. *The Zodiac*, 1(2): 23-25, Aug; (3): 33-35, Sep.
1835. A synopsis of the rocks of the state of New York. *The Zodiac*, 1(2): 27-28. (Signed by Eights; only one part published.)
1835. The naturalist's every day book. August, 1835. *The Zodiac*, 1(3): 42-44, Sep.
1835. The naturalist's every day book. September, 1835. *The Zodiac*, 1(4): 60-63, Oct.
1836. Notes of a pedestrian. *The Zodiac*, 1(7): 111-112, Jan; (8): 113-116, Feb; (9): 141-143, Mar; (10): 146-147, Apr; (12): 177-178, Jun; 2(1): 10-11, Jul; (2): 28-29, Aug.
1836. The naturalist's every day book for May, 1835. *The Zodiac*, 1(9): 129-132, Mar.

1836. Entomology. *The Zodiac*, 1(12): 178-180, Jun. (Signed "E."; actually on spiders.)
1836. *Reminiscences of the city of Albany*, by James Eights, M.D. With an engraving, showing a view of the city, from the opposite side of the Hudson River. Albany: No publisher or printer given. Title page + pp. 3-18, with folding plate. See text for annotations on this and following entry.
1836. *Reminiscences of the city of Albany*. With a beautiful and correct engraving of the city, taken from the opposite side, on the Hudson River. 2d ed. Albany: Bready. 12 pp., plate.
- (1836-1837). As noted elsewhere, five essays by a traveler in Europe, said in a recent reprinting of *The Zodiac* to be by Eights are not his work; titles of the articles are: Description of three eccentric old gentlemen (*The Zodiac*, 2: 36-37); Three days in Lyons in 1835 (2: 57-58); The "combats des animaux," at Paris (2: 65-66); Military aspect of France: Hotel des Invalides (2: 81-84, all 1836); Glasgow (2: 110-112, 1837).
- 1836-1842. (In) Records of the United States exploring expedition under the command of Lt. Charles Wilkes, 1836-1842. National Archives and Records Service, Microfilm 75, RG 45, Naval Records Collection of the Office of Naval Records and Library, 27 rolls. Eights material is to be found scattered in the first seven rolls.
1836. Letter to Benjamin F. Butler, U.S. Attorney General, 2 Aug, asking for letter of support in his application for a place in the Wilkes expedition, citing experience on the 'Annawan.' National Archives, M75, RG 45, 1: 0066-67.
1837. JE to Mahlon Dickerson, Secretary of the Navy, 10 Jan. National Archives, M75, RG 45, 2: 0027.
1837. Vanuxem, Lardner (and JE). First annual report on the geological survey of the Fourth District of the State of New-York. Pp. 187-212, in *First Annual Report of the Geological Survey of the State*. N.Y. State Assembly Doc. no. 161. (JE's name appears at the end.) (Reviewed in *Am. J. Sci.*, 32: 186-190, Apr 1837.)
1837. JE to Mahlon Dickerson, 5 Jul. National Archives, M75, RG 45, 2: 0300-301.
1837. Collated list of individual requisitions, including JE's list. Aug. National Archives, M75, RG 45, 3: 0202-213.
1837. JE to Mahlon Dickerson, 4 Sep. National Archives, M75, RG 45, 3: 0246.
1837. JE to Mahlon Dickerson, 21 Oct, on expenses. National Archives, M75, RG 45, 3: 037-380. See Anon. 1838, House Exec. Doc. 147: 494-495, for this letter and a list of supplies requested.
1838. A description of the New South Shetland Isles, by James Eights, Esq., M.D., naturalist in the scientific corps in the American exploring expedition of brigs Seraph and Annawan under the command of Captain B. Pendleton, and N.B. Palmer, sent out to the South Seas under the directive agency of the author of this work, and the patronage of government in the years 1829 and 1830. Pp. 195-216, in: Edmund Fanning, *Voyages to the South Seas, Indian and Pacific Oceans, China Sea*. 2nd ed. New York: William H. Vermilye. (A slight modification of the natural history part of JE's publication of 1833; note that this did not appear in the first edition of Fanning's book in 1833.)
1838. JE to Commodore James Ridgley, 10 Feb. American Philosophical Society Library.
1838. JE to James K. Paulding, 8 Aug. National Archives, M75, RG 45, 4: 0403.
1838. JE to John Torrey, 8 Aug. Torrey Papers, New York Botanical Garden Library (previously, Herbarium, Columbia University). 2 leaves.
1838. JE to Asa Gray 17 Sep. Gray Herbarium Library, Harvard University. 1 leaf.
1838. JE to James K. Paulding, 21 Sep. National Archives, M75, GR 45, 5: 0085-86.
1838. JE to James K. Paulding, 21 Nov. National Archives, M75, GR 45, 5: 0114.
1838. JE to James K. Paulding, with carriage receipt, 23 Nov. National Archives, M75, GR 45, 5: 0117-118.
1839. JE to James K. Paulding, 26 Feb. National Archives, M75, GR 45, 5: 0267.
1840. JE to Senator Samuel Southard, 15 Dec. Samuel Southard Papers, Princeton

- University Library, Box 65, folder 13. 2 sheets. (This has at times been cited as 1841 but Princeton University gives it as 1840, correctly, I think.)
1842. Description [of *Sphaeroma bumastiformis*, etc.]. Pp. 390-391, 433-434, in: Ebenezer Emmons, *Geology of New-York*. Part II. Comprising the Survey of the Second Geological District. (Natural History of New-York, Division 4, Geology, vol. 2, pt. 2.) (Eights did not describe or illustrate other fossils for this volume; consult text for more on this supposed new species.)
1844. Origin of guano. *The Cultivator*, n.s., 1(12): 379-380, Dec.
1846. *Outlines of the geological structure of Lake Superior mineral region, belonging to the New-York and Lake Superior Mining Company*. Appendix to First Annual Report, New-York & Lake Superior Mining Co. Albany: Ptd. by Evening Atlas. 21 pp. + map.
1846. Lake Superior mining region (letter to Edwin Croswell, 19 May). Clipping from unknown paper, laid in Library of Congress copy of Eights's report, previous entry. (Croswell was a proprietor and the editor of the Albany *Argus* newspapers but this letter was not printed in the *Daily Albany Argus* [which SUNY-A Library has on microfilm]; it may, however, have been in either the *Albany Argus* [semi-weekly] or the *Weekly Argus*, neither of which is available to me.)
1846. Notes on natural history. *American Quarterly Journal of Agriculture and Science*, 3(2) 219-223, April.
1846. On the icebergs of the Ant-arctic Sea. *American Quarterly Journal of Agriculture and Science*, 4(1): 20-24, Jul.
1846. On the elevated temperature of the waters of the Gulf Stream. *American Quarterly Journal of Agriculture and Science*, 4(2): 210-211, Oct.
1847. Notes on natural history. *American Quarterly Journal of Agriculture and Science*, 5(1) 56-57, Jan.
1847. Notes on natural history. *American Quarterly Journal of Agriculture and Science*, (5): 246-259, May.
1848. Notes of a geological examination and survey of Mitchell's Cave, Town of Root, County of Montgomery, N.Y. *American Quarterly Journal of Agriculture and Science*, 7(1): 21-27, Jan.
1848. Some of our injurious Coleoptera. *American Quarterly Journal of Agriculture and Science*, 7(10): 438-443, Oct.
- (1850-1870?). Undated letter from James Eights to Dr. James H. Armsby in regard to bone (skull) of a whale. N.Y. State Archives, papers of State Museum Director's files (etc.), B0561-78A, Box 1, "Lists of collection items, 1850s-1870s," A 248/1. Unfortunately, this undated letter is in reply to Armsby's undated query. There is no evidence that this specimen went, with other Armsby items, to the State Cabinet.
- (1851? — doubtful; 1854 or 1855?). Letter to Joseph Henry from Greensboro', Guilford County, North Carolina. Smithsonian Institution Archives. Record Unit 305, U.S. National Museum Registrar, 1834-1958. Accession Records 1850/Eights, James. Accession no. 712. 2 sheets. (The letter is not dated; its disposition by a later classifier as 1851 was arbitrary.)
1852. Description of a new animal belonging to the Crustacea, discovered in the Antarctic seas, by the author. Albany Institute *Transactions*, vol. 2, art. 16, pp. 331-334, 2 pl. (On *Glyptonotus antarctica*.)
1852. Observations on the geological features of the Post-Tertiary formation of the city of Albany, and its vicinity. Albany Institute *Transactions*, vol. 2, art. 17, pp. 335-353, 1 pl.
1852. Explanation to Article IV. this volume. Albany Institute *Transactions*, 2: 354. (In this note he agreed that his genus *Brougniartia* of 1833 was properly the older genus *Serolis*.)
1852. The Adirondack Mountains. *Cultivator*, n.s., 9: 302-303, Sep. (Signed "J.E." but listed in annual index as work of James Eights.)
1852. The onion fly. *Cultivator*, n.s., 9: 334-335, Oct.
1852. The red-legged locust. *Cultivator*, n.s., 9: 367-368, Nov.
1853. [Notice of] A new genus and species of Crustacea; by James Eights. *American Journal of Science*, 2nd ser., 15: 135. (Not by

- JE; an anonymous notice by the editor, James Dwight Dana, of *Glyptonotus*; he did not give volume or page numbers of the original.)
1853. A new genus and species of Crustacea. *Annals and Magazine of Natural History*, ser. 2, 11: 339-340. (Not by JE; it credits Albany Institute *Transactions*, 1852, but is actually a reprinting of the notice in *American Journal of Science*.)
1853. Slaked lime and muck as a manure. *Cultivator*, ser. 3, 1: 10, Jan. (Signed "J.E." — there is no evidence that "J.E." wrote an adjoining article, "Potatoes in Tan, plaster, and in ashes," sometimes attributed to him.)
1853. The pigeon hole borer: *Tremex columba*. *Country Gentleman*, 1(1): 11-12, illust., 6 Jan. (Same as next.)
1853. The pigeon hole borer: *Tremex columba*. *Cultivator*, ser. 3, 3: 18-19, Jan. (Same as previous.)
1853. Slaked lime and muck as a manure. *Country Gentleman*, 1(3): 34, 20 Jan. ("J.E."; same as previous article of same name.)
1853. Entomology: *Pimpla lunator*. — Fab. *Country Gentleman*, 1(3): 42-43, three illusts., 20 Jan.
1853. On the study of insects. *Country Gentleman*, 1(4): 57-58, 27 Jan. ("Jas. Eights"; some parts same as "Entomology" in *Zodiac*.)
1853. Geological notice of the coast of Patagonia. *Country Gentleman*, 1(4): 74-75, 27 Jan. (Signed "Jas. Eights"; same as *Am. J. Ag. & Sc.*, 5[5], 1847.)
1853. (Account of captive prairie or barking wolf in Albany.) *Country Gentleman*, 1(5): 73-74, 3 Feb. (Part of an otherwise anonymous article on "The barking wolf.")
1853. The Rocky Mountain sheep. (*Ovis montana* — *Desm.*) *Country Gentleman*, 1(6): 89-90, 10 Feb. (No evidence that this was based upon personal experience.)
1853. Entomology. The bark beetle — (*Scolytus destructor*.) *Country Gentleman*, 1(7): 104-105, one illust., 17 Feb. (As in "Some of our injurious Coleoptera," 1848, in part.)
1853. On the origin of honey dew. *Country Gentleman*, 1(9): 136-137, 3 Mar.
1853. Dissemination of the seeds of plants (. . . No. 2;...No. 3). *Country Gentleman*, 1(10): 152-153; (11): 171; (12): 186; 10, 17, 24 Mar.
1853. The swift fox. — (*Vulpes Velox*. Say.). *Country Gentleman*, 1(13): 201-202, 31 Mar.
1853. On the cultivation of cochineal (...No. 2). *Country Gentleman*, 1(15): 234; (16): 250-251; 14, 21 Apr.
1853. Scraps from a naturalist's note book (nos. 1-24). *Country Gentleman*, 1(17): 264-265, 28 Apr; (18-21): 282-283, 296-297, 314-315, 328-329, 5, 12, 19, 26 May; (24-26): 337, 393-394, 407, 16, 23, 30 Jun; (27-28): 2(27-28): 13-14, 28-29, 7, 14 Jul; (31-34): 77, 92-93, 108-109, 124-125, 4, 11, 18, 25 Aug; (35-39): 140-141, 156-157, 173, 188-189, 205-206, 1, 8, 15, 22, 29 Sep; (41-43): 236, 252-253, 268-269, 13, 20, 27 Oct; (44-45): 284-285, 300-301, 3, 10 Nov. (All signed "J.E., Albany"; the last one was dated by him as submitted on 1 Nov: there is no doubt Eights was author of the series and that he was resident in Albany until that time and had not yet departed for North Carolina.)
1854. *A report relating to the Fisher Hill and Puckett mines in Guilford County, North Carolina*. No place: no publisher. Written from Fisher Hill. 7 pp. + map.
1854. *To A.B. Stith, president of the Ward Gold Mine Company*. Greensboro: no publisher. 2 pp.
1855. *A report on the geological, mineralogical and other resources of the Hiatt tract of land, containing 2000 acres and situated in the county of Surry, N.C.* Greensborough: Ptd. at the "Patriot" Office. 8 pp.
1856. Description of an isopod crustacean from the Antarctic seas, with observations on the New South Shetlands. *American Journal of Science*, ser. 2, 22: 391-397, 2 pl. (With editorial comment by James Dwight Dana, this reprinted JE's 1852 paper on *Glyptonotus*, previously noticed in abstract in *AJS*, as well as most of the natural history part of JE's 1833 paper on *Brongniartia*, thus in part correcting a long-standing injustice to JE.)
1856. Letter to Benson J. Lossing, 15 Jun. The Huntington Library, LS 624. 2 pp. (In regard to a drawing but also clarifying certain aspects of Lossing's ownership of JE's original drawings of Albany street scenes.)

1857. Albany fifty years ago. *Harper's New Monthly Magazine*, 14(82): 451-463, Mar. (An unsigned essay, written by contributing editor Benson John Lossing from notes given him by JE; illustrations were made up, without credit, from original reconstructions of Albany street scenes by JE.)
1858. Letter to James Hall, 17 Feb. N.Y. State Library, James Hall Papers, PG16478, folder 613; 2 pp. (Report of an otherwise unknown trip by JE to Panamá.)
1858. North Carolina. — its geology, mining regions, scenery, &c. No. 1(-4). *Mining Magazine and Journal of Geology*, 10(3): 183-188, (4): 268-273, (5): 369-373, (6): 423-427, Mar-Jun. (All signed "James Eights, Geologist.")
1861. New Chinese silk worm. *Country Gentleman*, 17(428): 194-195, 21 Mar. (Signed "Jas. Eights.")
1864. Our songsters of summer. *Country Gentleman*, 23(597): 402, 23 Jun; 24(599-601): 18, 34, 50, 7, 14, 21 Jul; (605-606): 114, 130, 18, 25 Aug; (609-610): 178, 194, 15, 22 Sep. (Eight articles signed "J.E.")
1864. Honey and the honey bee. *Country Gentleman*, 24(603): 82-83, 4 Aug; (604): 98, 11 Aug. (Signed "J.E.")
1864. On textile vegetable fibre. *Country Gentleman*, 24(607): 138-139, 1 Sep; (608): 254, 8 Sep. (Signed "J.E.")
1864. Coal and its origins. *Country Gentleman*, 24(611): 211, 29 Sep; (612): 226-227, 6 Oct. (Signed "J.E.")
1864. On the 'eland' cattle as a breed. *Country Gentleman*, 24(613): 236, 13 Oct. (Signed "J.E.")
1865. The Coleophora or tent-building caterpillar. *Country Gentleman*, 25(639): 242, 13 Apr; (640): 258, 20 Apr. (Signed "J.E.")
1865. On the utility of the maize plants. *Country Gentleman*, 25(641): 266-267, 27 Apr. (Signed "J.E.")
1865. The Fasciola or sheep fluke. *Country Gentleman*, 25(643): 300, 11 May. (Signed "J.E.")
1865. Italian mode of fattening ortolans. *Country Gentleman*, 25(643): 301, 11 May. (Signed "J.E.")
1865. Eyes of insects. *Country Gentleman*, 25(648): 386, 15 Jun; (649): 402, 22 Jun. (Signed "J.E."; second part is entitled "Vision of insects.—No. 2.")
1865. Scraps from my every-day book. — 1. *Country Gentleman*, 26(655): 75, 3 Aug. (Signed "J.E."; an encouraging title but no other parts appeared.)
1865. Slumber of insects. *Country Gentleman*, 26(657): 114, 17 Aug. (Signed "J.E.")
1865. Haschisch — *Cannabis (indica) sativa* — common hemp. *Country Gentleman*, 26(658): 130-131, 24 Aug; (660): 162-163, 7 Sep. (Signed "J.E.")
1865. Mordants and dyes. *Country Gentleman*, 26(659): 146, 31 Aug; (661): 178, 14 Sep; (663): 210, 28 Sep. (Signed "J.E.")
1865. How to destroy sheep sorrel. *Country Gentleman*, 26(665): 235, 9 Nov. (Signed "J.E."; same as next.)
1865. How to destroy sheep sorrel. *Cultivator*, ser. 3, 13: 351, Nov. (Signed "J.E."; same as previous.)
1865. Dessicated milk. *Country Gentleman*, 26(670): 322, 16 Nov. (Signed "J.E.")
1865. Hydra viridis: found in our city waters. *Country Gentleman*, 26(671): 338, 23 Nov; (672): 354, 30 Nov. (Signed "J.E.")
1866. On the formation of peat. *Cultivator & Country Gentleman*, 27(677): 18, 4 Jan. (Signed "J.E.")
1866. Peat and its mode of working. *Cultivator & Country Gentleman*, 27(679): 50, 18 Jan. (Signed "J.E.")
1866. Glycerine. *Cultivator & Country Gentleman*, 27(682): 98, 8 Feb. (Signed "J.E."; actually a two-parted article: see 24 Jan 1867.)
1866. Pinkster festivities in Albany sixty years ago. *Cultivator & Country Gentleman*, 28(721): 306-307, (722): 323-324, (723): 338-339; 8, 15, 23 Nov. (Signed "E." on first two, "J.E." on third; all clearly by Eights.)
1867. Pinkster festivities in Albany sixty years ago. In Joel Munsell's *Collections on the History of Albany*, 2: 323-327. (A reprinting of parts two and three of previous, with no mention of part one; there was a brief introduction by Munsell.)

1867. Glycerine. *Cultivator & Country Gentleman*, 29(732): 66, 24 Jan. (Signed "J.E."; see 8 Feb 1866.)
1867. Unfermented bread. *Cultivator & Country Gentleman*, 29(736): 127, 21 Feb. (Signed "J.E.")
1867. White and brown bread. *Cultivator & Country Gentleman*, 29(747): 306, 9 May. (Signed "J.E.")
1867. Principles of water color painting with practical hints. *Cultivator & Country Gentleman*, 30(756): 35, 11 Jul. (Signed "J.E.")
1869. *Report upon the mines and railroad owned by the Sullivan and Erie Coal and Railroad Company of Pennsylvania*. Albany: Weed, Parsons and Co., printers. 7 pp. + fold. pl. of geological strata. (Author on title page is: "Prof. James Eights, of the City of Albany"; copy in James Hall Papers, American Museum of Natural History Library, which has supplied photocopy; see next item.)
1870. Geological report of Professor James Eights. Pp. 26-31, in: *Statement concerning the Sullivan and Erie Coal & Railroad Company of Pennsylvania, geological report of Prof. Jas. Eights....* New York, February, 1870. New York: E. Hoyt & Co., Book and Job Printers. 31 pp. + map (frontispiece) and colored folding plate of geological strata. (I have copy courtesy of Professor Warder H. Cadbury.)
1871. Receipt for money received, signed by JE. Albany Institute of History and Art Library, Acc. No. 1066. D.S. 1 p. (Receipt for \$100 received from Robert Shurman in payment for services as surveyor of land in Essex County, N.Y.)
- 1872 (1878). Importance of frictional action, as related to light, motion, and heat. Albany Institute, *Proceedings*, 2(1): 4, for 19 Nov. (This is actually a summary notice of the paper, which was read by the Recording Secretary, Daniel J. Pratt; it is not clear whether Eights was present; see also AI Minutes, 19 Nov 1872; AI Archives, B4.1.1., ledger p. 13.)
- 1872 (1873). Defense by members of Albany Institute, particularly Robert P. Whitfield, of JE's priority in regard to trilobite-like crustaceans, against recent claims of Louis Agassiz. Albany Institute, *Proceedings*, for 7 May, 1: 322-324. See also AI 'Minutes' for that date: AI Archives, B4.1.1, ledger pp. 619-622. (Not a paper by JE, of course.)
1874. Darwin's speculations. *Cultivator & Country Gentleman*, 37(1111): 302, 7 May. (Signed "J.E.")

JAMES EIGHTS, A BIBLIOGRAPHY OF CITED AND CONSULTED WORKS

While works are attributed to author or editor when such is known, truly anonymous articles are

listed, strictly by date, under Anonymous, then alphabetically by title. References to dictionaries and encyclopedias are by title. When possible, I have credited authors with their works, as in initialed (or signed) entries in biographical encyclopedias

If articles are untitled, I generally supply one, sometimes within parentheses; explanations, if called for, are added at the end of an entry, within parentheses; books are generally listed by short-titles, unless something significant appears in the subtitle. Great care has gone into identification of various editions only when there is need to determine when an item first appeared in a string of editions.

Dates are supplied, when known. Reprint editions, with dates, are usually given in an addendum to the main entry, since they have often been used by me. Facsimile means a work whose main body is page for page as in the original. Articles in periodicals may, in a few cases, be given two dates, one of which is the conventional date (the year for which the publication was issued), the second (within parentheses) being the date of actual publication.

Periodical and book titles are set in italics. Book titles have all substantive words capitalized; periodical and pamphlet articles, with the occasional exception, have only initial and prop-

er words capitalized.

I have made no attempt to list all cities in which a publisher may have operated. In some cases, there may be need to refer to American and foreign editions of a work. Citation of periodical publications may be simplified; volume part, article number and the like may or may not be cited but volume number and full pagination will be given; months and days are always supplied for periodicals when issues are paged separately. Newspapers are commonly cited by name or catch-title and day (in old newspapers, pages were often not numbered); little attention is given to volumes, numbers, and so on. Pagination of books has been simplified and there is no attempt to give a full description in the bibliographical sense. Pertinent peculiarities in pagination will be noted when known. In a multivolume work, pages are usually not given for individual volumes.

Author entries are arranged chronologically when dates are known. Items appearing in the same year, if not dated more specifically, are arranged alphabetically within the period. Obituary notices may be listed either under the person's name or under "Anon.," with a cross-reference.

ABBOTT, R. Tucker, and M.E. YOUNG, eds.
1973-1974. *American Malacologists; a National*

- Register of Professional and Amateur Malacologists and Private Shell Collectors and Biographies of early American Mollusk Workers Born between 1618 and 1900.* Falls Church: American Malacologists. iv + 494 pp.
- ADAMS, Charles C. 1943. The World's Fair historic murals (by David C. Lithgow). N.Y. State Museum *Bull.*, 333: 27-35 (including figs. 3-6).
- ADAMS, Charles C. 1944. (Acquisition of portrait of JE by Asa W. Twitchell.) N.Y. State Museum *Bull.*, 335: 26, pl. 11 on p. 33.
- ADAMS, Charles C., and J.D. HATCH, Jr. 1943. Exchange of letters on authenticity of JE as artist of the 'Eights views of Albany.' Albany Institute of History and Art (AIHA), Library. Letters of 23 and 26 Apr.
- ADAMS, Charles C. et al. 1937. A chronological sketch of the history of the New York State Museum. N.Y. State Museum *Bull.*, 313: 85-121.
- ADAMS, John Quincy. 1875. *Memoirs*. Ed. by Charles Francis Adams. Philadelphia: Lippincott. 12 vols. Reprint, Freeport: Books for Libraries Press, 1969.
- AGASSIZ, Louis. 1872. The Hassler Expedition. Letter from Prof. Agassiz. Another fulfillment of his prophecy — Discovery of a new crustacean. *New-York Tribune*, 31(9666): 5, 28 Mar. (See editorial reference to the letters, p. 4.)
- AGASSIZ, Louis (and H.E. STRICKLAND). 1854. *Bibliographia Zoologiae et Geologiae. A General Catalogue of all Books, Tracts, and Memoirs on Zoology and Geology*. London: The Ray Society. 4 vols. Reprinted, New York: Johnson Reprint Corp., 1968.
- AIMWELL, Absalom (pseud.?). 1803. *A Pinkster Ode for the Year 1803*. Albany. 12 pp.
- ALBANY ACADEMY. 1913. *Historical and Financial Survey of the Albany Academy, 1813-1913*. Appendix to Centennial Catalogue. Albany: Brandorn Ptg. Co. for Albany Academy. 140 pp.
- ALBANY ACADEMY. 1914. *The Celebration of the Centennial Anniversary of the Founding of the Albany Academy, May 24, 1913*. Albany: The Academy. 132 pp.
- ALBANY ARGUS (title varies). 1813-1920. Microfilm. Many items cited separately.
- ALBANY (City) BICENTENNIAL LOAN EXHIBITION. 1886. *Catalogue of Albany's Bicentennial Loan Exhibition*. Albany: Weed, Parsons & Co. xxii + 5-155 pp.
- ALBANY COUNTY POST. See Anon. 1933, 1 Dec.
- ALBANY DIRECTORY. Various publishers brought out annual directories, beginning with Joel Munsell's Directory for 1813, with some 2,000 names. I have checked volumes through the year 1882.
- ALBANY EVENING JOURNAL. 1880. "The Rhyme of Sturgeonopolis. A Cooperative Poem," by the Carriers of the Albany Evening Journal...January 1st, A.D. 1880. Albany: Journal Print, 8 pp.
- ALBANY INSTITUTE (etc.). 1824-1838. The collections of SPUA and ALNH. See especially "Catalogue of the Property of the Albany Institute; since its formation May 5th 1824." (Reference is to Society for the Promotion of Useful Arts and Albany Lyceum of Natural History.) McKinney Library, AIHA.
- ALBANY INSTITUTE. 1824-1857; 1857-1872. Minutes. 2 bound ledgers. McKinney Library, AIHA.
- ALBANY INSTITUTE. 1832 (1833). Report of curators on funds, 1832. McKinney Library, AIHA. 3 sheets. Dated "Feby 1833." (Includes information on purchase of JE's Antarctic specimens.)
- ALBANY INSTITUTE. 1870. *Proceedings of the Albany Institute*, Dec. 2, 1863-Feb. 27, 1865. *Transactions*, Albany Institute, 6: 259-298.
- ALBANY INSTITUTE. 1873, 1878. *Proceedings*. Vols. 1-2. (13 Mar 1865-30 Sep 1872; Oct 1872-Dec 1877.)
- ALBANY INSTITUTE. 1879. *Manual of the Albany Institute (including a list of all members since its organization)*. *Transactions*, Albany Institute, 9: 319-345. (See also D. Pratt, 1870.)
- ALBANY MICROSCOPE, The. See: W.E. Rowley, 1990.
- ALBANY RURAL CEMETERY. See Anon., 3 Jul 1845.
- ALBANY RURAL CEMETERY. 1846. *Albany Rural Cemetery Association: Its Rules*,

- Regulations, &c., with an Appendix*. Albany: C. Van Benthuysen. 5-64 pp.
- ALBANY RURAL CEMETERY. 1902. *Numerical Catalogue of Proprietors of the Albany Rural Cemetery, January 1, 1902*. No place, no publisher. List of officers in front of t.p. 362 pp. (many pages blank). (Other editions exist.)
- ALBERTS, Fred G., ed. 1995. *Geographic Names of the Antarctic*. U.S. National Science Foundation, Publ. no. 95-157. xxiv + 834 pp.
- ALBRITTON, Claude C. et al. 1843. *Reports of the First, Second, and Third Meetings of the Association of American Geologists and Naturalists (1840, 1841, 1842)*. Boston: Gould, Kendall & Lincoln. 544 pp., 20 pl. (Reprint, New York: Arno, 1978.)
- ALDRICH, Michele L., and Alan E. LEVITON. 1987. James Hall and the New York Survey. Pp. 24-33, in R.H. Fakundiny and E.L. Yochelson, *Earth Science History*, 6(1).
- ALLAN, Mea. 1967. *The Hookers of Kew, 1785-1911*. London: Michael Joseph. 273 pp., illusts.
- ALMY, Robert F. 1937. J.N. Reynolds: a brief biography with particular reference to Poe and Symmes. *Colophon*, n.s., 2: 227-245, winter.
- AMICUS. 1823. Letter to Stephen Van Rensselaer, Member of Congress, 15 Feb. AIHA Archives Colln/ALNH Record Group, DE 563/1/2WW. 1 folded sheet.
- ANDOW, D.A., R.J. BAKER, and C.P. LANE, eds. 1994. *Karner Blue Butterfly: A Symbol of a Vanishing Landscape*. St. Paul: Minnesota Agricultural Experiment Station, University of Minnesota. 222 pp., illust.
- ANNAWAN, Brig. See Survey of Federal Archives, 1940: 15-16.
- ANON. No date. (Brief biography of JE.) Library, AIHA, 1 p. (Obviously based largely upon J.M. Clarke, 1916; by the time deposited, the Cogswell's JE drawings had been put in the AIHA collections.)
- ANON. 1817. (Death of Abraham Eights, Jun., eldest son of Dr Eights of Albany, aged 21 years.) *Albany Argus*, Fri., 12 Dec. (Died 6 Dec.)
- ANON. 1822. Unparalleled munificence (the Van Rensselaer/Eaton survey of the Erie Canal). *The Plough Boy*, 4(15): 115. (From the *Albany Daily Advertiser*.)
- ANON. 1823. (Snide remark about plan to incorporate Albany Lyceum of Natural History.) *The Albany Microscope*, Albany, 2 (whole no. 103): 171, 1 Mar.
- ANON. 1824. Rensselaer School. *Albany Argus*, Fri., 10 Dec. (From the *New York Statesman*.)
- ANON. 1825. (Advertisement for) The La Fayette, etc. *The Albany Microscope*, 5 (whole no. 213?): 40. (Whole no. looks like "218" to me.)
- ANON. 1826. (The Erie Canal trip of Amos Eaton, JE, et al.) *Albany Argus* carried accounts as follows: "Rensselaer School...." 25 Apr; "Canal Arrival" (at Utica), 13 May; "Professor Eaton....," 29 May; "From the Syracuse Gazette. Geological Expedition," 13 Jun.
- ANON. 1828, 1830, 1831. (Notices on celebration of end of slavery in the State of New York.) *Albany Argus*, 3 & 7 Jul 1828; 7 Jul 1830; 6 Jul 1831.
- ANON. 1829. Abstracts of the proceedings of the Lyceum of Natural History of New York. *American Journal of Science*, 16: 353-360.
- ANON. 1829. Expedition to the South Seas. *New Bedford Mercury*, 18 Sep. See *Argus*, 25 Sep.
- ANON. 1829. (Preparations by J.N. Reynolds and N.B. Palmer in New Bedford; arrival in New York imminent.) *Morning Courier and New-York Enquirer*, 5(741): 1, 23 Sep.
- ANON. 1929. Expedition to the South Seas. From *New Bedford Mercury*, via *New York Gazette*. *Albany Argus*, 25 Sep.
- ANON. 1829. (Call for loan of instruments, charts and books for the South Sea Exploring Expedition.) *Morning Courier and New-York Enquirer*, 5(743): 2, 25 Sep. (The same was inserted 24 Sep.)
- ANON. 1829. (Polar expedition, etc.) *Niles Weekly (National) Register*, 37(942): 86, 3 Oct.
- ANON. 1829. (Arrival of 'Annawan' yesterday; to leave tomorrow; Eights accompanies Reynolds.) *Morning Courier and New-York Enquirer*, 5(762): 2, 17 Oct.
- ANON. 1829. Antarctic expedition. *Morning Courier and New-York Enquirer*, 5(764): 2, 20 Oct.

- ANON. 1829. The South Sea Expedition. *Niles' Weekly (National) Register*, 37(945): 132, 24 Oct. (From N.Y. *Enquirer*.)
- ANON. 1829. The South Sea expedition. *Albany Argus*, 27 Oct. (From N.Y. *Courier*.)
- ANON. 1829. (Departure of brig 'Seraph,' Capt. Pendleton, from Stonington for Block Island to join 'Annawan'.) *New Bedford Mercury*, 30 Oct. (Quoted in full in R.F. Almy, 1937: 240, note 32.)
- ANON. 1830. History of the Institute, with an abstract of its *Proceedings. Transactions*, Albany Institute, 1(2), Appendix, pp. 1-74. (Includes copy of Charter, Catalogue of Library, Members.)
- ANON. 1830. (Mr. Reynolds and 'Annawan' arrive in Cape Verde Islands, 14 Nov 1829.) *Albany Argus*, 30 Mar. (See next entry.)
- ANON. 1830. South Sea expedition. *New Bedford Mercury*, 2 Apr. (This is Reynolds's letter from Bonavista, 14 Nov 1829; see previous entry.)
- ANON. 1830. (A January report of the American discovery brigs 'Seraph' and 'Annawan' at Cape Horn.) *Albany Argus*, 14 May.
- ANON. 1830. Exploring expedition (letter of J.N. Reynolds, Staten Island, 13 Jan 1830). *Morning Courier and New-York Enquirer*, 7 (949): 2, 2 June.
- ANON. 1830. From Valparaiso. *Courier and New-York Enquirer*, 7(1027): 2, Wed., 1 Sep. (Arrival at Stonington 29 Aug of the brig 'Bogota'; return there of "Dr. Eyting [= Eights!], of the 'Anawan.'")
- ANON. 1830. (Return of JE to Albany from Antarctic.) *Albany Evening Journal*, 1(141): 2, Tues, 2 Sep.
- ANON. 1830. (MS Registers of vessels arriving at the port of New York from foreign ports 1789-1919.) National Archives Microfilm M1066, Roll 3. (Two different entries have the brig 'Bogota, master Swanton, from "South Seas" on 2 Sep.
- ANON. 1830. The Exploring expedition. *Albany Argus*, 24 Dec.
- ANON. 1831. (Arrival of 'Annawan,' Capt. Palmer, with seal skins for E. Fanning.) *Morning Courier and New-York Enquirer* (city edition), 7(1311): 2, 5 Aug.
- ANON. 1831, 1832, 1834. (The Jonathan Eights Hog Law.) *Albany Argus*, 7 Sep 1831; 20 Jun 1832; 13 Mar 1834.
- ANON. 1832. Scenes in Paris. *Daily Albany Argus*, 18 Sep.
- ANON. 1833. Albany Institute. (Abstract from the Minutes, continued, Feb 21.) *Daily Albany Argus*, 9 Apr. (Note on acquisition of JE's South American specimens.)
- ANON. 1833. (Donations to AI, Nov 1833). *Daily Albany Argus*, 22 Nov. (Long list of specimens from JE, including a locust, geological specimens, trilobites.)
- ANON. 1833. South Sea exploring expedition. *Daily Albany Argus*, 29 Nov. (JE mentioned in passing, with reference to his relation of natural history matters in recent *New York Mercantile Advertiser & Advocate*; two letters, signed "Observer" and "Cyclopaedia," from a recent Philadelphia paper.)
- Anon. 1834. A Committee of Vigilance to promote the election of the Republican candidates in this ward. *Albany Argus*, 6 May. (For "Republican," read Jacksonian, Anti-Whig, Anti-Federalist, today's Democratic Party; for results, see *Argus*, 7 May.)
- ANON. 1834. Albany Institute (list of accessions and contributions; disposal of Eights's Antarctic shells). *Albany Argus*, 10 Jun.
- ANON. Modern trilobites of New South Shetland. *American Journal of Science*, 27: 395. (Editor was unable to give more particular notice because he had lost his copy of Albany Institute Transactions which contained JE's paper on *Brongniartia*.)
- ANON. 1836. (Manuscript list of plant specimens collected by JE, sent to W.J. Hooker and named by him in his *Companion to the Botanical Magazine*.) AIHA, Library. 1 p. (Listed in AIHA index as dated 1830 but this is an error in transcription.)
- ANON. 1836. (Death of Abraham C.W. Eights, son of Jonathan Eights on 5 Nov.) *Albany Argus*, 7 Nov.
- ANON. 1836. List of books required in the Botanical Department of the South Sea Expedition [!]. National Archives, M75, RG 45, 1: 0516-518. Seems to be filed with a letter by B.F. Butler to M. Dickerson, 11 Nov

- but it may simply be misallocated; it was too early to have anything to do with JE; an early list prepared by Asa Gray.
- ANON. 1837. (Notice of appointment of Doct. James Eights to the South Sea Surveying and Exploring Expedition.) *Albany Argus*, 10 Jan.
- ANON. 1837. Geological Survey. *Albany Argus*, 19 Apr. (Taken from review of Vanuxem and JE's report in *Am. J. Sci.*, 32: 186-190.)
- ANON. 1837. List of books procured for the U.S. Exploring Expedition, and of those recommended by the portion of the Scientific Corps assembled at Phil'y — August — 1837. National Archives, M75, RG 45, 3: 0188-202. Includes titles pertaining to JE. (This was printed in House Exec. Doc. 147, 1838, pp. 429-448.)
- ANON. 1837. (Donations of specimens from Chile, South Shetland Islands, etc., Jul and Oct 1834, by J.N. Reynolds.) *Boston Museum of Natural History Journal*, 1: 521, 522.
- ANON. 1837. (Various bills submitted for supplies for JE.) National Archives M75, RG 45, 3:0450-353.
- ANON. 1837. The Exploring expedition. *Albany Argus*, 26 Oct. (A full list of men appointed, including "J. Eights, esq., Albany, N.Y." — from the *Daily Advertiser* of New York.)
- ANON. 1838. (Defense of Secretary of the Navy in his battle with J.N. Reynolds, in regard to latter's published 'Correspondence' between the two.) *Albany Argus*, 8 Feb. (Taken from the *Washington Globe*; mentions neither Dickerson nor Reynolds by name.)
- ANON. 1838. (Death notice of Elizabeth Hilton, "relict of Peter W. Hilton of Guilderland, sister of the late Abraham Eights, aged 90.") *Albany Argus*, 3 Apr. (Death occurred 31 Mar.)
- ANON. 1838. Report on the South Sea Exploring Expedition. U.S. 25 Cong., 2d Sess., House Exec. Docs. 147. See: M. Dickerson, 1838.
- ANON. 1842. (Accounts of aurora borealis, Albany, Nov 1841.) N.Y. State Board of Regents, 55th Ann. Rept., N.Y. Senate Doc. 55: 229-230. (From *Albany Evening Journal*, 19 Nov; *Albany Daily Advertiser*, same date; in reference to aurora of 18 Nov.)
- ANON. 1843. (Various reports on Fourth Annual Meeting of the Association of American Geologists and Naturalists.) *Albany Argus*, 27 and 29 Apr; 1 and 4 May. (Quite full coverage for this newspaper; generally interesting; only item related to JE is his name in list of members, 29 Apr.)
- ANON. 1845. Laws of New-York....An act to provide for the safe keeping of the Cabinet of Natural History...Passed May 10, 1845. *Albany Argus*, 26 May.
- ANON. 1845. The Albany Cemetery. *Daily Albany Argus*, 3 Jul.
- ANON. 1845. (Death of Douglass Houghton, drowned in Lake Superior 13 Oct.) *Albany Argus*, 3 Nov. (Body recovered following spring.)
- ANON. 1846. Amos W. Twitchell exhibits at National Academy, New York. *Daily Albany Argus*, 18 May.
- ANON. 1846. (A.W. Twitchell and others sign testimonial for painting by Rembrandt Peale.) *Daily Albany Argus*, 21 Dec. (Peale's *The Court of Death* highly commended; Albany Gallery of the Fine Arts.)
- ANON. 1847. State Cabinet of Natural History. *Albany Argus*, 10 Jul. (A long editorial inviting readers to take notice of a meeting of the Board of Regents at which the condition of the Cabinet was discussed at length.)
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- ANON. 1882. (Death of Dr. James Eights, aged 85 years, in Ballston Spa on June 22.) *Ballston Journal* (a weekly newspaper), 1 Jul. (This is the only notice of death that I have found; it cannot be said who furnished the incorrect information that he was 85 years old.)
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- ANON. 1891 (1892). (Additions to the Museum collection; donation of specimens from Albany Institute.) Annual Report of the New York State Museum, in 45th Annual Report of the Board of Regents for the Year 1891, p. 20. (No details given.)
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